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MODERN VIEWS ON BONE SARCOMAS

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Bone sarcomas may be divided into —

I. *Osteogenic sarcomas*—These may be further divided into Gross Anatomic types.

1. (*a*) Medullary or Endosteal

(*b*) Sub-periosteal from the superficial layer of cortex

(*c*) Periosteal from the deep layer of periosteum

(*d*) Sclerosing where marked osteitis and formation of bone is seen.

(*e*) Telangiectatic—where formation of blood vessels is marked

2. Undifferentiated Sarcomas—where it is difficult to say as to which of the above group they belong.

3. Periosteal Fibro-sarcomas. These usually arise from the outer fibrous layer of periosteum.

II. *Parosteal Sarcomas.*—These are periosseous sarcomas and are not true bone sarcomas. They lie adjacent to the bone and may produce pressure atrophy.

and bending of bone without actual invasion of the bone. They are globular, firm and at first encapsulated, but of rapid growth They are made of spindle cells and are fibro-sarcomas arising from fasciæ. These are less malignant than the Osteogenic type.

Treatment.—Free excision followed by radiation is the best treatment for these.

III. *Ewing's Sarcoma.*—Probably an Endothelioma.

IV. *Myelomas.*—Same as what was formerly called General Myelomatosis.

V. *Giant—Celled Tumour of bone*—though not a sarcoma is here discussed being usually a locally recurring tumour of bone.

Osteogenic Sarcoma

It is an osteoblastoma Cells vary from spindle cells to mucoid, cartilage, or true bone cells. It may be of sclerosing type where ossification of inter-cellular substance occurs, or osteolytic type where bone absorption and destruction are more evident The sclerosing type is more common in children and the osteolytic type in adults, the latter is more liable to invade the epiphysis They may be central or periosteal.

Pathology.—Small hyperchromatic spindle cells are most common. Large spindle cells, polyhedral cells with multiple nuclei and cartilage cells of osteoblastic type are found. The tumour never contains round cells; and giant cells are rare. Lamellary bone formation with parallel lamellæ with lacunæ is rare. Trabeculated bone formation with non-lamellated, homogeneous or fibrillated

trabeculæ are common. An infiltration by lymphocytes is not uncommon showing the resistance of the body. Hæmorrhages in the tumour are common.

Etiology—It is more common in males than in females 3 1, but in the first decade the female sex predominates. It occurs chiefly in the second decade of life 30% of the cases develop a month or two after injury to the bone. 33% of bone sarcomas are osteogenic in type and it is twice as frequent as giant-celled-tumour.

Site is usually the metaphysis of long bones. 72% occur in the lower extremities and 80% of these near the knee. This is due to the fact that most bone injuries occur in the lower limbs and most frequently about the knee joint Femur is the site in 52%, tibia in 20% and humerus in 9%. It is extremely rare in the lower end of radius which is a common seat of giant cell-tumour. In the femur it is most frequent at the lower end 82%, 9% in the great trochanter, but is rare in the head and neck of femur. In the tibia 90% involve the upper end of tibia and in the humerus it rarely occurs below the deltoid tubercule. In the pelvic bones it is found chiefly in the crest of ilium or ischium. Scapula is involved round the glenoid cavity Skull if involved is chiefly in children It is more common in the lower than in the upper jaw. The fact that the epiphyses round the knee are the last to join may account for its greater prevalence here Sarcoma may be grafted on multiple osteochondromas as in Paget's disease. 14% of Paget's disease die of sarcoma (Codman).

Symptoms.—Boring, gnawing pain, aggravated at night with usually a tired feeling, weakness of msucles and a limp is complained of. Intermittent pain is more

characteristic of Ewing's sarcoma than osteogenic type. Pain disappears after radiation Finally a swelling in the bone is noticed. The overlying skin is pale and stretched, with dilated veins and warm to the touch. Ulceration is rare. Later oedema, purplish tint, pulsation or bruit may be present. Egg-shell crackling is not common. Adjacent joint is not affected until late. Constitutional symptoms are rare Anæmia in the later stages is of a chalky colour rather than the lemon-yellow of cancer Sometimes there may be a leucocytosis which is really a lymphocytosis or 3—5% myelocytosis. Exploratory incision or injury increases the rapidity of growth. Pathological fractures may occur but union of such may also occur. The articular cartilage resists invasion till late, the joint then becomes fusiform Sympathetic effusion in the joint may occur long before the joint is actually involved.

Prognosis.—Dissemination is mostly by the blood stream, rarely by lymphatics, within two years of onset: and death may occur soon after. Metastases occur in the lungs, other bones, abdominal visceræ, brain or skin Regional lymph nodes are exceptional. Prognosis is bad. It is more hopeful if occurring after 30 as regards duration of life. Nearer to the trunk graver is the prognosis especially in osteogenic type. It is gravest when neck of femur is involved. Radical excision of clavicle for sarcoma is followed by death in three years. Sarcomas of bones of hand and feet and osteocartilaginous tumours of the jaw are somewhat less malignant than those of long bones. Sclerosing sarcomas are less malignant than the osteolytic type. Large size and capsulation are more favourable if no metastases have occurred. Lower malignancy is suggested by adult type of cell, slow growth, leucocytic infiltration. High malig-

nancy is shown by small spindle cells, polymorphism, necrosis, marked vascularity, (telangiectasis). Recurrence is more common, and occurs in two years. X-ray examination of the whole skeleton is necessary to exclude metastases.

Diagnosis.—In the early stages the site, free movement of joint, enlargement of bone and X-ray appearances will confirm the diagnosis. A pulsating tumour of bone is a sarcoma as no true bone aneurysms have yet been proved. Presence of myxomatous tissue indicates a sarcoma. X-ray appearances —indefinite outline, spindle shape, ossification of growth under the raised periosteum, with, at the ends of growth, a lipping of periosteum (a wedge shaped osteophytic thickening) or a fan-like sun-ray appearance are characteristic. Excessive bone formation occurs in the young and true expansion of the shaft is rare.

Treatment.—High amputation is rarely done now, except in the early *stage as recurrence is common in* two years. In the later stages Coley's* Fluid with radiation, or radiation with local excision are done. Coley's Fluid is useful in spindle cell types with little formation of bone. Prophylactic radiation is of little use and mav do more harm

Ewing's Sarcoma

This is considered by many as an Endothelioma arising from cells of the blood vessels of the bone, and consists of small polyhedral cells

* Coley's Fluid —A ten-day old agar culture of B Prodigiosus is sterilsed by heat and added to a three weak old sterilised broth culture of streptococcus in the proportion of 100 ccs of latter with 30 ccs of former with 30 ccs of glycerin *It is given subcutaneously or intramurally* and tried for four weeks If improvement occurs injections are given every one to four weeks' for a year or more. Myxomatous, chondromatous and sclerosing sarcomas are resistant.

Site.—It usually occurs in long bones as tibia, fibula, humerus, ulna and femur. It may also occur in the small bones of the hand, feet, vertebrae, ribs, skull, mandible, scapula, and pelvic bones' in order of frequency. It is rare in the clavicle. It usually selects the shaft and involves more than half or the entire length of the shaft. The epiphyses are not entirely immune In vertebrae more than one is involved Multiple lesions of the skeleton are usual.

Pathology.—The mass involves the shaft widely or starts in multiple areas spreading apart the lamellæ. The tumour is soft and mushy, whitish grey in colour resembling granulation tissue. Later it forms a soft crumbling growth that permiates the marrow and the cortex with diffuse bone absorption. There may be a thin pseudo-capsule formed in the soft tissues (with necrosis and liquefaction suggesting pus or cyst formation) with yellow or red jelly-like contents

Cancellous bone is diffusely involved, the bony lamellæ are separated and pushed apart by the tumour cells, the tension and pressure lamellæ showing in a radiogram, the bone appears thicker. The picture strongly suggests Osteomyelitis The cortical bone is destroyed by tumour cells which rarify and diffusely dissolve the bone from within the Haversian canals. A protective reaction of periosteum lays a shell of new bone which in its turn is invaded and another new layer is laid down. Shell after shell of new bone is laid and in its turn is invaded by tumour cells These shells are parallel to the shaft like the layers of an onion. Finally the periosteum is invaded and then the soft tissues outside it.

The cell is small and uniform, rounded or polyhedral, with round or slightly elongated nucleus. Mucoid or hydropic degeneration occurs There is frequently a perithelial arrangement round the blood vessels Intercellular substance is usually absent There may be infiltration by plasma cells, lymphocytes.

Metastases is by blood stream, sometimes by lymph stream to the lungs, skull, other bones, kidney, liver, and spleen

Symptoms.—It develops before the age of 15, usually between 5 to 15. It frequently follows trauma and is rare after 40 A young person after a trivial injury develops fever, slight leucocytosis, limp, aching with tumefaction of bone The incipient attack subsides to recur some days or months later. Usually osteomyelitis is diagnosed Pain is characteristically intermittent at first but becomes constant later on Thickening of bone is present and a leucocytosis with a normal differential count is also present Late in the disease a secondary anæmia may appear Skin is usually free till an exploratory incision is made when the skin gets infiltrated resulting in a fungating mass It never involves an articular cartilage or a joint X-ray shows characteristic striations or onion-layers, usually involving more than half the shaft, with thickening of the entire shaft and cortex. There is little tendency for formation of bone at right angles to the shaft There may be repeated febrile attacks.

Treatment—Under radiation temporary improvement and retrogression occur, but recurrence is usual, metastases in the skull, bones, lungs, etc, with fatal results in 6—24 months. Ewing's sarcoma is treated by

radiation, Coley's fluid and if no improvement occurs by amputation

Myeloma (formerly called Myelomatosis)

These occur in the marrow arising from the myelocytes of bone marrow and are very malignant. They occur in short bones, sternum, ribs, vertebrae, skull, clavicle and mid portions of long bones. They are multiple central tumours of bone They consist of solid masses destroying and absorbing the cortex in all directions. Several tumours in different parts of the skeleton are present. It invades cortex, periosteum, epiphysis, and is not osteogenic in character. The cells resemble myelocytes. It usually occurs between the ages of 40—60.

Symptoms—Mild rheumatic pains with loss of weight and anæmia is complained of The contour of bones may be normal or show palpable masses. Deformity and secondary fracture may occur. Bence Jones's proteinuria is present in 80%. X-ray skiagram shows a moth-eaten appearance beginning in the medulla and involving all portions of the bone.

Diagnosis—Age of patient, the central character of tumour and multiplicity of growth the clear-out defect without any attempt at bone production as seen in skiagrams, and especially the proteinuria differentiate this type from others.

Giant-celled Tumour (called Myeloma till now).

Pathology.—A soft reddish current-jelly like, brownish red or chocolate coloured vascular central tumour occurring in the ends of long bones. It is characterised by the presence of many large giant cells resembling those normally present in the marrow. The growth

recurs if incompletely destroyed or excised but does not metastasize. It occurs at the lower end of radius, lower end of femur, upper end of tibia, lower end of tibia and in the lower jaw either in the marrow or in connection with alveolar periosteum The overlying bone becomes expanded and thinned out and finally perforated The growth extends towards the articular cartilage but rarely perforates it It is a vascular central tumour which spreads from the metaphysis to the epiphysis being limited by the articular cartilage and periosteum Hæmorrhage and cyst formation are common but there is no formation of bone.

Symptoms—It usually occurs between the ages of 25 to 35 and is rare in childhood and old age. Frequently history of preceding injury to the bone is given Mild pain, progressive bulbous enlargement of a long bone especially near the knee or the wrist is given. The symptoms may continue for years without affecting the health of the patient The growth may pulsate or have a bruit and the thin bone show egg shell crackling The joint function is unimpaired and the adjacent bone may be bent but is not affected The overlying skin may be warm and show venous engorgement. Secondary disability follows fracture or impaction of bone X-ray appearance an expansion of bone with a soap-buble appearance due to bone absorption involving chiefly the epiphysis and largely unilateral, the margins not being as clearly cut as in Osteitis Fibrosa Cystica. The joint is usually free from effusion or ankylosis

Treatment—Early thorough curettage with the application of zinc chloride 10% to the cavity to destroy any remaining cells In the upper extremity amputation should be avoided but in the lower owing to weight

bearing function amputation is advisable in the case of large tumours Radiation has also proved of value.

Aneurysms of bone are really vascular sarcomas or the result of a giant cell tumour They are most frequently found in the lower end of femur or upper end of tibia and sometimes in the bones of pelvis. An angiosarcoma is common.

Periosteal Fibrosarcomas

These arise from the outer layer of periosteum forming a mass of growth in the surrounding soft tissues having but little effect on the bone Such growths are seen in connection with alveolar periosteum in the case of epulis, and in connection with the os calcis No new bone is seen with the naked eye but only a little irregularity of the surface of bone Histologically the growth is a spindle-celled sarcoma and some invasion of the underlying bone may be observed Some of the nasopharyngeal sarcomas are of this type.

Symptoms —A slowly growing tumour attached to the bone but not apparently involving it, is noticed It recurs if a piece of bone either as U-shaped wedge or a scale with the periosteum is not removed at the same time. It resembles a soft fibroma.

Treatment —Complete excision with the periosteum and a little of the adjacent bone followed by radiation is recommended

Differential Diagnosis of Bone tumours —History of preceding bone injury is given in 50% of the cases. Onset may be sub-acute with pain worse at night or may be gradual Previous health is usually robust Osteogenic sarcoma usually grows from metaphysis chiefly from the

lower end of femur or upper end of tibia and humerus, etc. It is more frequent in males, between the ages of 15—30 Sclerosing type is more frequent in children. X-ray appearance is characteristic showing the sun-ray appearance Rapid but temporary improvement occurs on radiation and duration after the first appearance of tumour is 24—36 months. Early metastasis is common in the lungs

Ewing's tumour is an Endothelioma and affects a considerable area of the shaft of the long bones such as tibia, fibula, humerus, etc, especially in males between the ages 5—15 years There may be leucocytosis The X-ray appearance is characteristic—the onion-layer appearance It is very liable to be mistaken for chronic osteomyelitis

Myeloma (Myelomatosis) is characterised by multiple lesions very early. It affects many bones and many areas in the same bone, ribs, sternum, skull, vertebrae, etc. It occurs chiefly in males between 40—60 Bence-Jones's proteinuria is characteristic. It is fatal in 2—10 years

Giant-cell Tumour involves the epiphysis mostly and occurs between the ages of 20—35. Lower end of femur and radius and upper end of tibia are the commonest sites Bone expansion without perforation of periosteum or articular cartilage takes place It never involves the surrounding structure X-ray appearance is also characteristic—there is an abrupt limit of the tumour on the shaft side, though the cortical bone of the tumour may be perforated in places.

TESTS OF RENAL EFFICIENCY AND THEIR VALUE IN CLINICAL PRACTICE

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It is customary to attach only a secondary value to laboratory technique in the diagnosis, prognosis and treatment of disease. Clinical signs are usually considered to be of primary importance. The statement that " the laboratory is a good servant but a bad master " is true in many cases, but so far as kidney disease is considered, requires modification. Sir William Willcox [1] states that there is no disease in which it is so difficult to give a prognosis as kidney disease and in this respect it can be classified along with Hay Fever and asthma.

In order that these tests may be of real value, several conditions are to be fulfilled. There ought to be closer co-operation between the patient, the clinician, the biochemist and the Pathologist. An intelligent patient, who strictly follows the instructions of his medical attendant, saves half the trouble and worry. Clinical symptoms should be taken hand in hand with tests, as it is known that the clinical state of a patient is not a sufficiently accurate guide as to the state of the kidneys and usually some method of investigating the efficiency of the kidney is required.

Careful interpretation of the results is necessary and certain extraneous factors must be considered. Liver disease, cardiac disease and the nature of the usual diet of the patient are to be taken into account. For example,

albuminuria present in advanced cardiac failure does not necessarily mean any marked change in the renal function.

The estimation of the function of the kidneys has a wide sphere of usefulness in clinical practice. In the domain of surgery it is most useful in cases of prostatic enlargement when a prostatectomy is thought of. As a matter of fact, whenever any major operation in an elderly patient has to be done. an estimation of the renal function ought to be the rule. Many deaths have occurred as a result of omission of this procedure.

In the realm of Obstetrics, *e g*, albuminuria complicating pregnancy, it is of great value in distinguishing those cases of pregnancy complicated by nephritis, where a termination of pregnancy is desirable for the safety of the mother as well as the child. It has been noted that in a considerable number of cases of pregnancy associated with albuminuria, casts, œdema, temporary visual disturbances and hyperpiesia, permanent damage to the cardiovascular and renal systems remain (F. E. Clow [2] 10 out of 28 cases).

Within the province of the physician it is no less important. Besides helping in differentiating between the various types of nephritis, especially in distinguishing cases of chronic interstitial nephritis from hyperpiesis. where clinically, a differential diagnosis is very difficult, it aids the physician in estimating the prognosis of the case and keeping an 'eye' over the progress of the disease.

Moreover, in cases of unilateral disease of the kidney, the healthy kidney can be identified from the diseased one.

It is not intended in this article to describe in detail the various tests employed ; only the significance of these tests and their application in the clinical diagnosis, prognosis and treatment of various conditions will be considered. A few observations on the present day knowledge of renal function will not be out of place.

Functions of the Kidney.

The kidneys are responsible for (1) maintaining a constant H ion concentration of the blood by the removal of waste products of nitrogenous metabolism and acid products from the body; (2) maintenance of the optimum concentration of salts in the tissue fluids ; (3) removal of any poisons of exogenous origin.

Cushny's [3] theory of renal function is that in the first stage the liquid portion of the blood is filtered through the glomeruli into the tubules. This filtrate contains all the normal soluble constituents of the blood. At this stage those parts of the tubules which are in close relation to the glomeruli contain a liquid with the same concentration of the soluble substances as the blood plasma. When this liquid travels down the tubules there is a reabsorption of water with resulting increase of concentration. Cushny believes that Uric acid is only partly reabsorbed with the water but urea is all excreted.

Cushny's theory is not widely accepted as it does not explain certain phenomena in some pathological conditions. Moreover, there is no positive evidence that uric acid, sugar, etc., are reabsorbed.

Others believe that the glomerular epithelium possesses a vital selective action so far as salts are concerned. While admitting that the filtration might

affect only the water, they doubt if the filtration affects the salts at all.

The problem of uræmia in nephritis has brought many observers into the field. Andrews [4] believes that the suppression of urine in uræmia is due *not* to the deficiency of the power of the kidneys to eliminate water, but "to the firmer combination of water with the blood and tissue colloids" and that it is not the retention of the nitrogen or the suppression of urine which produces the uræmic syndrome. He concludes that "it is probable that uræmia is not a renal disease but a disturbance of the normal metabolism causing a disintegration of the great parenchymatous organs, which allows the protein to leak into the blood and pass through the kidneys as foreign proteins" Because, in the early stages of nephritis the protein in the urine is derived from the degeneration of the large parenchymatous organs such as the liver and the spleen and in the later stages the blood protein, but at no stage are the proteins of muscle or kidney to be demonstrable The modern idea of kidney disease is thus modified.

Acidosis in renal disease.— This is really a lowering of the Sodium Bicarbonate content of the blood and does *not* mean that the blood becomes acid in reaction. In diabetes, organic acids accumulate in the blood, but in kidney disease it is *not* so

The importance of chemical findings in acute nephritis cannot be over estimated. In some cases it is found that the chemical picture of the blood is less grave than the clinical condition of the patient. In such cases, the cases ultimately progress well. There is retention of urea in the blood and retention of salt and fluid.

The reappearance or increase of salt in the urine is one of the best and earliest indications of improvement. Several instances are on record in which the clinical picture of the patient has not improved, but recovery has taken place when the amount of chlorides in the urine has gradually increased. The hydræmic variety of nephritis responds normally to certain tests whereas the azœtœmic type does not.

I shall now mention the various tests employed to estimate the renal function. The tests can be classified as follows:

(1) Tests depending upon the analysis of the urine.

(2) Tests depending upon the analysis of the blood.

(3) Tests depending upon the excreting power of the kidney by the administration of

(*a*) Substances like water, urea, Benzoic acid, and " Renal test meals."

(*b*) Some foreign substances such as the dyes phenol sulphone-phthalein or indigo carmine or substances like Phloridzine or Sodium Thiosulphate.

A. Bolliger [5] thinks that equally good results can be obtained by injecting 1 gram of Sodium Thiosulphate intravenously, instead of dyes.

Tests depending upon the analysis of the urine

Presence of albumin.—This is tested for by the well known boiling test and nitric acid test. The fallacies of

the boiling test are that phosphates also give a positive reaction but these dissolve on the addition of a few drops of dilute acetic acid. Bence-Jones's Proteose also gives the same reaction but it appears at about 50°C, disappears on boiling and reappears on cooling. The nitric acid test is not considered to be a delicate one.

Salicyl-sulphonic test.—1 c.c. of urine is put in 2 tubes, to one of which 2 or 3 drops of saturated salicyl-sulphonic acid is added. There is turbidity if albumin is present. Maclean [6] considers it to be a very delicate test although others do not agree with him.

The presence of albuminuria is not rare and is often seen in the absence of renal disease, even along with casts. On the other hand advanced renal disease may be present without albuminuria. A possibility of gumma or tumour of kidney has to be remembered, when renal investigations are being done. Albumin with blood or pus is of course of grave significance, but it has to be borne in mind that the blood or pus may be derived from other places than the kidney In cases of pyelitis due to calculi the amount of albumin is generally small.

Globulin.—The presence of globulin is demonstrated in three ways. First, by the appearance of a precipitate in the cold on the addition of dilute acetic acid to the urine. Secondly by the production of "rings" when the urine is dropped into a tall glass jar with distilled water. Thirdly by precipitation by saturation with Magnesium sulphate.

Much importance has been laid on the relative amounts of albumin and globulin present in urine. The total protein is first estimated by Esbach's method. Then 50 c.c of urine is alkalinised and saturated with Magnesium sulphate to remove globulin. A second

estimation by Esbach's method is made, with a correction. The difference is the percentage of globulin. The protein quotient, *i.e.*, $\frac{\text{albumin}}{\text{globulin}}$ varies with different conditions from 0·6 to 39.

3. *Presence of casts.*—The presence of casts such as hyaline and granular ones in chronic nephritis, epithelial ones in acute nephritis, blood casts in acute nephritis, congestion, infarct, etc., fatty and waxy casts in chronic renal disease and amyloid disease and pus casts in suppuration of kidney, gives us another valuable bit of information. The presence of casts in a centrifugalised deposit is not so valuable as when found in a non-centrifugalised specimen.

4. *Presence of pus and mucin.*—Mucin is normally found in small quantities. It is tested by the following method Urine is boiled and filtered to remove the albumin and globulin. 10 c.c. of the filtrate is diluted to 40 c.c. with distilled water and acetic acid is added. Turbidity indicates mucin or nucleoputeins. The only fallacy in this method is that the urine must be diluted, otherwise a precipitate of urates will appear.

The best method demonstrating pus in urine is by taking a smear and staining it.

5. *Diastatic test.*—This can be conveniently considered here. Usually blood contains a certain amount of diastase and when the kidneys are efficient, a fairly constant amount is excreted daily in the urine. When the kidneys are not working efficiently, the quantity is less, depending upon the deficient renal action. The "Diastatic activity" in the urine is estimated in terms of the amount of starch which a definite volume of urine

will alter in a fixed time, the disappearance of the starch being indicated by the absence of a blue colour when a mixture of starch and urine is treated with iodine. For this test it is essential to have a 24 hours specimen of urine. The normal "diastatic activity" is 10 to 20 units, but as low as 6 is compatible with good health. The lower the value the greater the inefficiency of the kidneys. In advanced renal disease the value is often 1 unit. The following are the fallacies of this test:—

(*a*) It is too technical and requires an experienced observer.

(*b*) The standard solution of the dye (with which the colour is compared), is made up with *water* whereas the solution to be tested is *urine*, which often contains traces of bile pigment, etc., so the colour is modified

(*c*) Even if the standard solution is made up with some of the patient's urine, instead of water, there is one drawback. The colour of urine excreted before the test is different from the colour of the urine during the test.

(*d*) It is noticed that in some cases of acute nephritis the diastase excretion is increased while in chronic nephritis of an advanced type a normal diastatic value is sometimes seen.

(*e*) The necessity of employing a colorimeter is a handicap. On the whole, much reliance is not placed on this test.

6. *Estimation of chlorides in urine.*—According to Sir William Willcox, the urea concentration test, the

blood urea and the chloride estimation in urine are considered to be the three important tests for kidney function. He states that in cases of advanced renal damage the NaCl in the urine is below 0·5 % and in water-logged cases almost absent. Normally the concentration of salt in body fluids is 0·6 %. In kidney disease more salt is retained and so more of water is held back to maintain the "optimum concentration" of 0·6 %. If more of water is retained, more of salt has to be held back. It is thus not known, in cases of oedema, which process is primary.

The chloride test, however, is not valuable as there are other factors regulating the percentage of NaCl in the body, besides the kidney. For example, in the exudative stage of pneumonia more of NaCl is excreted in the bronchial secretion and so less of it is found in the urine.

Tests depending upon an analysis of the blood.

1. *Blood urea estimation.*—This is considered to be the most valuable test of renal efficiency that we have. The following are the normal constituents of the blood:—

Urea, about	30 mgms. per 100 c.c of blood.
Non-protein Nitrogen	} 30 mgms. do.
Creatinin	.... 1·25 mgms. per 100 c.c.
Uric acid	.... 2 to 3·5 mgms. do.
Cholesterol	... 150 do. do.
Chlorides	.... 500 do. do.
Calcium	... 10 do. do.
Inorganic phosphorus	... not more than ·3 mgms. per 100 c.c.

Urea and non-protein nitrogen are increased in the azœtœmic type of nephritis. If the figure is over 40, renal inefficiency can be suspected, if over 80, almost undoubted. However, in many extra renal conditions such as cases of intestinal obstruction, acute abdominal conditions, prolonged vomiting, etc., an increase of nitrogen and urea in blood occurs. In these cases, a urea concentration of the urine (mentioned below) is to be done. If the urea concentration of the urine is below 2% it is renal if above 2·5% non-nepheritic.

The percentage of urea or non-protein nitrogen however does not indicate the degree of renal damage.

Creatinin.—If the amount is over 1·5 mgm. per 100 c. c. renal damage is suspected; over 5 mgm. per cent. serious prognosis.

Blood cholesterol.—If the figure is over 200 mgms. per 100 c. c. renal disease is suspected. Gall stones are to be excluded.

Blood chlorides.—Any figure over 500 mgms. is said to be present in Chronic parenchymatous nephritis.

Blood Calcium :—In the terminal stages of azœtœmic nephritis there is a fall of blood calcium to 7 mgms. per 100 c.c. and this is associated with localised tremors and twitchings. In nephritis this fall of blood calcium is associated with an increase in the acid soluble phosphorus from 3 to 6 mgms. per cent.

Myers[7] found that out of 29 cases in which the blood inorganic phosphorus varied between 7 and 25 mgms. per cent. 27 died in a short time.

F. S. Patch[8] and I. M. Rabinowitch[9] found, in an analysis of 5,000 cases that high urea values are often

associated with normal creatinine values, but uraemic symptoms did not usually appear when the creatinin content was normal. They therefore conclude that blood urea *alone* cannot be relied on in prognosis, but should be taken in conjunction with creatinine.

Blood analysis should always be taken in conjunction with clinical findings. The blood urea is normally about 20 to 30 but it rises with the age and in old patients a value of 60 is compatible with good health. Blood urea estimation is of little value in unilateral kidney disease, because one healthy kidney is sufficient to keep blood urea normal.

The following are the cases in which blood urea estimation is indicated .—

(*a*) In acute or subacute cases, estimation at weekly intervals help to gauge the progress of the disease.

(*b*) In chronic cases, acute or subacute exacerbations of the disease may be detected. These exacerbations are not unusual, specially in cases of renal disease due to cardiovascular trouble.

(*c*) In surgical disease for prostatectomy.

Uraemia is *not* due to retention of urea in blood. Persons with a blood urea of 30 mgms. have died of uraemia.

Tests depending upon the excreting power of the kidney.

I. *Elimination of water.—(a) Albarran's test.—* 500 c.c. of water are given to a starving patient and half hourly specimens of urine are collected. Normally,

polyuria occurs within the first half hour, when it reaches the maximum and then sinks rapidly. In nephritis, polyuria is either absent or delayed.

(*b*) *Strans-Graunwald test.*—1 pint of water is given to a starving patient and urine is collected hourly. Normally the total amount passed in the first three hours should be equal to the quantity of fluid taken. In nephritis it is considerably less.

II. *Urea concentration test.*—After emptying the bladder the patient is given 15 gms. of urea dissolved in water and urine is collected one hour and two hours afterwards.

First specimen should contain at least 1 5% urea.

Second specimen should contain at least 2% urea.

Figures below these, indicate renal inefficiency.

III. *Benzoic acid test.*—Omit Benzoic acid from the diet and estimate the hippuric acid in a 24 hours specimen of urine. If it shows a lower percentage than in a normal individual renal inefficiency is suspected.

IV. "*Renal test meals*"—This is described by Mosenthal [10]. It is an elaborate one and consists in giving some standard diet to the patient. Two hourly specimens of urine are collected throughout the day. Three good meals at intervals of 8 hours are given. The bladder is emptied after a night's fast and urine is collected at two hourly intervals till 8 P.M. and the night urine is collected in one quantity from 8 P.M. to 8 A.M. The specimens are examined for volume, specific gravity, urea and salt concentration Renal impairment is indicated by (*a*) fixed or low specific gravity, (*b*) lowered out-put of salts and nitrogen, (*c*) tendency to total

polyuria, (*d*) loss of concentration of night urine associated with low specific gravity and nitrogen contents.

V. *Excretion of foreign substances such as dyes*—(*a*) *Indigo carmine test*.—Ureteric catheters are passed and 0·1 gm. of the dye is injected intramuscularly. Urine should be tested after 6 to 8 minutes. Intensity of colour is noted. Excretion is usually complete in 12 to 24 hours. This test decides which kidney is affected.

(*b*) *Phenol-sulphone-phthalein test*.—300 c.c. of water is given to the patient to drink. Twenty minutes later the bladder is emptied. 0·6 gm. of dye is injected intramuscularly. The urine is collected after 10 minutes, 1 hour and 2 hours. The percentage of dye is estimated by adding enough 25% NaOH to produce a deep red colour and the volume is made up to a litre. A standard solution is made by dissolving 0·003 gm of dye in water and adding 25% NaOH to produce a permanent colour. The volume is made up to a litre and the known and unknown solutions are compared with one another in a colorimeter.

I hour 50% of dye should be excreated.

II hour 70% of dye should be excreated.

Anything below these figures means renal impairment.

(*c*) *Sodium Thiosulphate* test, already referred to.

VI. Ambard's coefficient is the name of a complicated formula which is put forward to represent a test of renal function.

$$\frac{m}{\sqrt{D \times \frac{70}{Wt} \times \sqrt{\frac{C}{25}}}} = \text{constant}$$

Where m = gms. of urea per litre of blood.

Where D = gms. of urea excreted in urine in 24 hours.

Wt = Weight of person in Kgms.

C = gms. of urea per litre of urine.

This co efficient is not valuable.

The application of renal efficiency tests in surgery has been emphasised by various observers. J. F. Dobson [11] puts forward the following conclusions, with special reference to prostatectomy .—

(1) Blood urea concentration corresponds very closely with clinical symptoms.

(2) Impaired renal function occurs in patients who have no infection of the urinary tract, the renal impairment being due entirely to back pressure by a "slowly progressive enlargement of the prostate".

(3) Severe infection of the urinary tract—such as the bladder, may be present without impaired renal function

(4) Majority of cases of serious infection have impaired renal function.

(5) A decided fall in blood urea occurs after cystotomy; in the majority of cases the blood urea falls practically to normal.

(6) Those cases in which blood urea figures remain high after cystotomy are very serious.

A few words might be added about the blood pressure in renal disease. In acute nephritis the blood

pressure is increased when oedema is well marked and comes down when the oedema disappears. The systolic as well as the diastolic increases, but only to a moderate extent *viz.*, 180/110. The pulse pressure which is greater than normal during the period of increased pressure, becomes gradually normal as the pressure falls. Fall in blood pressure is usually connected with a rise in rapidity of the pulse. When the blood pressure is high, the pulse rate is slow, sometimes as low as 40.

When the blood pressure persists for some time after complete disappearance of oedema the possibility of accompanying chronic disease must not be overlooked. In a general way, the oedema runs a parallel course with the hydraemia and the blood pressure.

In many cases of well established renal disease the blood pressure bears some general relationship to the gravity of the condition, but there are exceptions to the rule. Extensive renal disease may be present with little or no alteration of blood pressure and high blood pressure may be present in arteriosclerotic cases without kidney involvement.

Cases are brought to notice where the blood pressure is 180 or more, the patient has giddiness, vomiting or convulsions, granular or hyaline casts may be present and clinically uraemia is diagnosed, but the tests show that blood urea is normal, urea concentration test, urea concentration factor, and diastatic tests are normal. In these cases the high blood pressure is due to arteriosclerosis with cardiovascular involvement without the kidneys being much affected. Professor Boyd [12] of Edinburgh comes to the conclusion that the blood pressure furnishes no evidence as to the state of the kidneys, although, as previously mentioned, it may be helpful in detecting the

onset of chronic renal disease after an attack of acute nephritis has obviously passed off. In some young persons the blood pressure is normally high, such as 155/80.

In conclusion, it might be mentioned that tests of renal function are a very valuable adjunct to clinical findings, in cases where the clinical history is not of much value, the tests come to the rescue of the physician, surgeon or obstetrician Of all the tests mentioned, the blood urea estimation is the most outstanding one, although it has its fallacies, while many of the other tests are of great value.

To summarise, the following are the conditions in which renal efficiency tests are valuable —

Medical cases —

(1) They help to differentiate between the various types of nephritis from one another and from pure hyperpiesia.

(2) In detecting acute or sub-acute exacerbations of chronic nephritis

(3) In detecting the onset of chronic disease when an acute attack is quieting down.

(4) In estimating the prognosis and watching the progress of the disease

(5) Impending uraemia can be suspected and due precautionary measures taken.

Surgical cases.—They decide —

(1) In cases of prostatic enlargement whether immediate or a delayed two stage operation is to be done.

(2) Whenever any operation in an elderly patient is to be undertaken, whether general anaesthetic might be given or not.

(3) Unilateral disease of the kidney can be detected.

Obstetrical cases.—They decide —

(1) In Cases of albuminuria complicating pregnancy whether true nephritis is present; for purposes of induction of premature labour or abortion

(2) Whether Eclampsia is coming on

Moreover in cases of life assurance whether a person can be insured as a " First Class " life and so on

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SEPTIC INFECTIONS OF LIP AND FACE

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During the past year there were six cases of septic infection of lips and face out of which only two recovered

Martin [1] of New York records seven cases with infection of the lip. Of these six died. They were all extensive staphylococcal infections of the lip with multiple foci One was of the lower lip and the others were of the upper lip

The papers and case reports which have appeared are curiously similar and curiously dissimilar One view is that if the patient has died it is because the furuncle has been incised or an exactly opposite conclusion has been reached and the opinion has been expressed that the incision has not been made early enough or wide enough.

Lanz in 1920 wrote from Amsterdam " Three of us were intern assistants in Kocher's clinic in Bern. One of us was attacked by a furuncle of the upper lip and had this furuncle incised by an expert Four days later he was dead.... Since that time I have no longer believed in incision in lip furuncles."

Doctor Powers, in 1901 wrote in the Philadelphia Medical Journal, Vol. VII, page 303, on the surgical importance of apparently simple carbuncles and furuncles of the upper lip. " In 1886 a young physician.... ..complained one day of a boil on his upper lip Two days

later, he was greatly surprised and grieved to learn that he was dead" He concludes his article by advising early and wide excision of lip furuncles.

Argument—Superficial Staphylococcal infections of the face and lips are very common folliculitis barbae in which the ordinary pyogenic staphylococci set up an inflammation, often purulent, in the hair follicles of the beard are not uncommon and pustular forms of common acne, solitary pimples and small boils are of everyday occurrence. Operations of removal of upper and lower jaw or operation for harelip or wedge-shaped excisions of lip for new growths or cancrum oris found so commonly in the debilitated children where veins are freely divided are not fatal Even carbuncles of the neck occurring amongst the old and enfeebled and amongst diabetics in this country are not so fatal. The cases of infections of the lip were all young people between 20 and 30.

Why are boils and carbuncles in the region of the lips and face so formidable? Lacerated and contaminated wounds of the face heal rapidly. Erysipalas of the face often recovers There is nothing to prove that the infections are of unusual virulence. There is increased danger of thrombo-phlebitis, embolism, cavernous sinus thrombosis, meningitis, septicaemia, pyaemia in infections of the nose, upper lip and face.

Organism.—Repeated examinations and cultures have shown that Staplylococcus aureus is the organism. There seems to be no reason to believe that bacteria of unusual virulence are commonly found in the lips

Etiology—When a furuncle or small Staphylococcal infection passes beyond the skin or mucous membrane of the lip and penetrates the substances of the lip, it can only

spread in the complicated frame-work of dense connective tissue between the various muscle bundles and in close contact with a rich plexus of veins. Thus a suppurating thrombo-phlebitis is established.

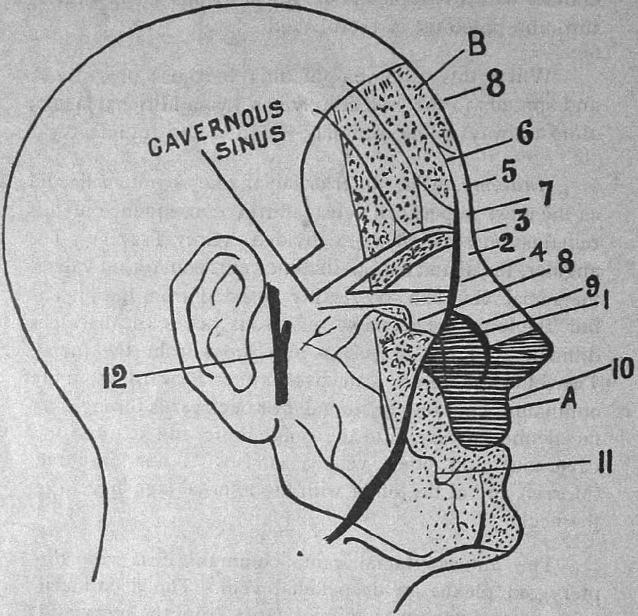
When this thrombo-phlebitis becomes progressive and spreads to the collecting veins two additional factors almost always come into play—motion and trauma

Anatomy—The anterior facial vein is not so flaccid as the most superficial veins and in consequence of this remains more patent when divided. (Grey Treves) The angular, facial and the ophthalmic veins contain no valves, the facial vein can be readily injected from the jugular but the labial veins have numerous valves so that it is difficult to force injection into them from the facial The blood therefore can pass either forward from the ophthalmic vein into the angular or backwards through the facial and angular into the ophthalmic and so on to the cavernous and other venous sinuses of the cranium, (Morris), and at the other with the internal jugular vein of the neck

The anterior facial vein communicates with the pterygoid plexus by deep facial vein. The deep facial vein passes downwards and forwards from the pterygoid plexus of veins between the buccinator and masseter muscles and opens with the outer side of the anterior facial vein under cover of the zygomaticus muscle.

The pterygoid plexus is of considerable size and can be seen to be such only in specially injected specimens In an ordinary dissection its magnitute may not become impressed in one's mind The plexus is situated between the Temporalis and Pterygoideus externus and

partly between the two pterygoideus. It receives branches corresponding to the internal maxillary artery and com-



1. Anterior facial vein.
2. Angular vein.
3. Superior opthalmic vein.
4. Inferior ophthalmic vein.
5. Frontal vein.
6. Supraorbital vein.
7. Superior palpebral vein.
8. Inferior palpebral vein.
9. Nasal vein.
10. Superior labial vein.
11. Inferior labial vein.
12. Temporal vein.

A.—Heavy dotted area around nose and upper lip is the critical area of face infections.

B.—Light dotted area is the danger zone for face infections.

municates with cavernous sinus by means of small veins which pass through the foramen ovale, foramen vesullii and the fibrous tissue of the foramen lacerum medium and with ophthalmic veins through the inferior orbital fissure

Course of the anterior facial vein—The anterior facial vein has a long course and changes its name according to the region in which it lies. It descends near the middle line, over the frontal bone, to the inner angle of the orbit, continues its course by the side of the nose to the cheek, which it crosses obliquely to the anterior edge of the masseter and thence passes through the digastric triangle to the upper border of the hyoid bone, where it terminates in the internal jugular vein. As it descends over the frontal bone it is known as the frontal vein, as it lies by the side of the nose it is called the angular vein whilst in the remainder of it course over the face and neck it is spoken of as the anterior facial vein.

The frontal vein communicates freely with the vein of the opposite side, across the glabella or root of the nose, by a transverse branch called transverse nasal vein. The transverse nasal vein usually receives the dorsal veins of the nose an infective condition on one side of the nose may easily spread to the opposite side also

The position of the vein must be remembered when incisions are made for the relief of suppuration in the face. The skin of the lip is very adherent to the underlying muscles, the fibres of which are inserted into the derma There is little or no loose connective tissue and fat beneath the skin, the main substance of the lip is made up of a net-work of muscle and connective tissue. The muscles in general are arranged in two sets: first a

group of fibres forming a true sphincter about the mouth, and second group rising from various parts of the face and converging towards the oral orifice and interlacing with the orbicularis. These muscle fibres are imbedded in a dense connective tissue making up the substance of the lip. There is a rich venous plexus which cuts obliquely the direction of the orbicularis oris, one portion of the venous net-work being superficial, one being beneath the muscle. The collecting venous trunk for the upper lip ascends along the naso-labial groove to empty into the facial at a point at the level of the nostril or even at the lower border of the orbit There are usually two rather slender collecting branches for the lower lip. They ascend obliquely and the lower empties into the facial low down in the sub-maxillary portion.

Morbid anatomy—For fifty or sixty years the fact that thrombosis of the cavernous sinus may follow infections of the lip have been mentioned in text-books of surgery Martin records at autopsy purulent thrombi in the sinus but also suppurative phlebitis of the ophthalmic vein on one or both sides.

In one case where death followed infection of the lower lip there was a red, indurated, browny swelling extending in the neck, not up toward the eye and in the autopsy there was moderate oedema of both lower eyelids but no lesion of the brain, meninges, ophthalmic vein or cellular tissue of the orbit. The patient died of Staphylococcus sepsis with multiple septic infarcts of the lung. The day before death the blood culture was positive for Staphylococcus aureus

In 1869, Reverdin made an autopsy on a woman who had died following a carbuncle of the lower lip

Both lungs presented numerous metastatic abscesses. The meninges, sinus and brain were normal He made a dissection of the face The internal jugular vein was healthy; a recent clot occupied the part of the vein adjacent to the angle of the jaw. The external jugular vein was filled in its cervical portion with a fibrinous clot mixed with liquid blood Its facial portion and the tributary branches were obstructed and filled with broken down blood clot, forming a reddish grey grumous material The angular vein was completely obliterated in its extent up to the angle of the eye, one of the labial veins was obliterated as well as several of the muscular branches Finally a large branch, which passes over the jaw to empty into the internal jugular, was filled with a broken down blood clot which ended in a point within the lumen of the internal jugular a portion of the clot had evidently broken off and been swept away by the blood stream.

At the time Reverdin wrote there had been 10 similar observations. In each instance a purulent phlebitis had been traced from the focus of infection An infectious phlebitis can thus cause death in two ways either by involvement of cavernous sinus and the concomitant intracranial lesions or by a portion of the clot being carried away by venous circulation to the right heart and thence to the lungs

Lenhartz in his book on septic diseases 1903, p 262, gives the autopsy findings in eight cases of staphylococcal sepsis following furuncles on the lip, nose or eyelid.

Lenhartz quotes the case to show that death may occur from sepsis and yet no suppurative thrombo-phlebitis be recognised at autopsy The patient, a girl of 12 had a furuncle of the upper lip, when she entered the

hospital two days later, the lip and left cheek were much swollen and several cords could be felt in the cheek. Both jugulars were ligated and oedematous swelling incised The entire upper lip was studded with small purulent foci. She died the next day The lungs and kidneys showed septic infarcts There was no evidence of thrombo-phlebitis in any of the veins or the ophthalmic. There is no record however of a careful dissection of the small veins of the face. In two of his autopsies there was a massive phlegmon of the face, diffuse purulent meningitis and infarcts of the lung He gives these as examples of the spread of infection through the orbit to the meninges by direct progression through the lymphatics and cellular tissue.

Price [3] classifies the infective process into 3 stages: (1) the initial lesion, (2) the period of extension, (3) the period of thrombo-phlebitis, embolism and septicæmia.

First stage—The initial lesion is usually confined to a hair follicle, sebaceous gland or sweat gland. It appears circumscribed and superficial. The skin is red, slightly swollen, oedematous, hard and tender for 24 hours During the following day a central point, the size of a pinhead, becomes necrotic and appears yellow beneath the epithelium

Second stage—The period of extension develops when localisation fails to occur or when the infected area has been cut into or squeezed or pricked Within 24 hours the infection invades the neighbouring hair follicles and glands A wide area of surrounding tissue is swollen, oedematous and infiltrated. Pain is intense, skin is purplish red. About the central necrotic focus, the tissues are very hard and tender. If it has been opened there is almost no discharge A small grey slough

may be visible. The early incision, squeezing and probing not only fails to give relief but causes a further rapid spread of infection and frequently results in a fatal thrombosis of the facial vein or septicaemia. Temperature is usually high and is an evidence of spread of infection or septicaemia.

Third stage—If the patient is seen for the first time in the third stage of the process, with thrombosis of the cavernous sinus, meningitis or septicaemia, the case is in all probability hopeless

Considerable induration about the focus of infection and oedema of loose cellular tissue of the eyelids is not uncommon in moderate infections and is not a sign of ophthalmic phlebitis.

Signs of pneumonia or bronchitis may be present; they are evidences of septicaemia or multiple abscesses of the lung.

Summary of Cases.

(1) Male 35 —Infection extended after multiple incisions, proved fatal.

(2) Female 30 —Incision under local anaesthesia, no pus; began to extend and cavernous sinus thrombosis set in and ended fatally.

(3) Male 30 —Conservative treatment, signs of pneumonia set in and died

(4) Male 35 —Cellulitis face, after incisions looked well for a day or two; cellulitis extended into the parotid and from the parotid upwards into the temporal fossa which ended fatally.

(5) Male 30 —Severe cellulitis face only conservative treatment; a circumscribed gangrenous area around the eye set in which was simply removed a week later; the man recovered.

(6) Male about 30 —Cellulitis of face on the 3rd day after the appearance of a pimple on the ala of the nose, a particularly well built man, septicaemia and pneumonia set in and died within 72 hours Staphylococcus aureus was found on cultural examination·

No post mortem examination was obtained in any of these cases.

The first principle of treatment for phlebitis is *Rest*, at the onset of infection of the veins, before the lips have become greatly distended, every contraction of the various muscles entering into the complex musculature of the mouth must press and squeeze the thrombosed, infected veins.

Rosenbach (1905) suggests that the anatomical relation of the muscles of the skin and the cellular tissue is such that infectious material is forced and "pumped" into the neighbouring connective tissue framework.

Hilton in his "Lectures on Rest and Pain", 1877, advocates a collodion dressing for small facial abscesses as in this way pressure and rest are secured.

The second factor is trauma. Case history after case history shows that the furuncle has been pressed or pricked with a needle or pin or match stick or touched with carbolic

If a small puncture is made through the derma into the firm connective and muscular tissues of the lip, it is almost certain to sever or nick one of the smaller veins

The blood escapes only partially externally; a portion spreads out along the lines of least resistance within the tissues This is more marked if the wound is packed tightly as stagnant blood within the infected tissues furnishes an excellent culture medium for bacteria About every focus of infection a wall of leucocytes is rapidly formed. On the integrity of this wall depends whether or not the micro-organisms advance into the tissues This wall is at first very delicate; as times passes it becomes better and better established

Punctures and rough manipulations may break through this protecting cellular wall

The efficacy of any form of local treatment cannot be judged unless it is known whether the case reported is a simple furuncle of the lip or complicated with phlebitis and whether the phlebitis is progressive or whether there is infection of blood-stream from portions of broken down thrombus.

Treatment is constitutional.—Powers of resistance is reinforced by feeding During the first ten days, put on Saline Compresses saturated in 4% Saline both day and night Avoid large compresses because their weight interferes with the superficial circulation and also because they are painful

When the process has become localized and liquefaction has advanced as may be recognised by a more abundant discharge, small multiple incisions may be made. Compresses are continued By delayed operative interference incisions are confined to the walled off zone and viens which are not blocked are not cut

Local anaesthesia should never be used. Early incisions into the septic foci about the lips are dangerous

and the danger is increased if the small exit thus made is packed with gauze to prevent bleeding

The rule should be to wait as long as possible, and then, when incisions become necessary to use a sharp knife, to avoid pressure and squeezing or the pushing of blunt instruments into the septic tissue in search of pus.

Treat in the early stages with collosal manganese or stock vaccines, 20 to 40% solution of magnesium sulphate locally,

Bier's hyperaemia by sucking glass;

Mercuro chrome 1% intravenously 10 c.c. when the infection shows signs of disemination.

It it is necessary to incise widely in infections of the upper lip with extension along the angular vein, the incision should follow the line of incision for resection of superior maxilla

Sir Frederick Treves said "infections of the lips should not be cut in the early stages on account of the danger of facial vein infection and thrombosis". This advice of Treves has been overlooked in the past.

The idea of opening the cavernous sinus when the infection had already touched the point has been thought of and rejected by Martin The cavernous sinus has been incised a number of times. A paper was published in 1902 on the subject and a case reported by Dwight and Germain (Boston Medical and Surgical Journal, May, 1902). Tavernier reported a case in 1909. One patient lived a few hours and the other 10 minutes or more after the operation. Not only is the sinus difficult to approach but conditions in the sinus are not at all like

those in the lateral sinus. The lumen is divided up by a net-work of round and flat trabeçulae and an infected clot caught in the meshes of the sinus net-work cannot be removed by a curette. Large veins also enter at a number of points along which infection can readily travel Thrusting a knife into the sinus does not influence favourably the spread of infection

Both the jugular vein and the facial vein have been ligated with the idea of preventing the spread of infection.

Later, reported a case of carbuncle of the cheek in which there was purulent thrombo-phlebitis of the facial and general infection and in which he was able to avoid further metastases and cure the patient by ligature of the jugular. Ligation of the jugular should be considered in cases where there is a blood stream infection and signs of general sepsis

Tavernier mentions the ligation of the jugular vein by Texier, but the plexus of veins and numerous anastomoses, the massive infiltration of surrounding cellular tissue, all make it difficult to recognise the thrombosed veins. Ligation should only be done on a sound vein wall at an appreciable distance from the infected thrombus

The distance between the entrance of one of the labial or nasal veins to the point where the ophthalmic vein enters the angular is very short, often hardly an inch. There would be a real danger of disturbing and loosening a thrombus in the endeavour to ligate at this point.

Conclusion.—Can an endeavour be made to determine the conditions which change a simple circumscribed

staphylococcus infection into a widespread and dangerous lesion. Martin concludes that many such simple lesions are often so changed by ill-advised treatment at the onset of the infection.

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A certain patent drug has the following composition —Thymus of calf, Ovaries of heifer, Spleen of pig, Duodenum of pig, Hypophysis of ox, Surkidneys of ox, Thyroid of sheep, Pancreas of pig, Orchitic juice of bull, Veal liver and Prostate of pig

Practically the whole *Zoo* has been represented—Only the Hippopotamus, Ostrich and Rhinoceros are left out

AGRANULOCYTOSIS.

By R VISWANATHAN, B A, M B & B S

Schultz in 1922 described a form of angina with necrosis of the tonsils and pharynx associated with a decided leucopaenia especially of the granulocytes. He classified this symptom-complex as a separate disease which he called 'Agranulocytosis'. Since then more than 120 cases have been recorded under this name. Hueper has reported five cases between November 1927 and April 1928, while more recently A. Bocage and L. Filliol have described a fatal instance of Agranulocytosis in a case of syphilis.

The etiology of the condition is unknown though most investigators are agreed in regarding it as an infectious disease of a septicaemic nature "with an atypical reaction of the haemopoetic system due either to bacteria with a special affinity and toxicity to the granulocytic system or to an atrophy and aplasia of this organ caused by septic infection" In the case reported by Bocage and Filliol they found at necropsy the characteristic changes in the bone marrow cells described by Schultz along with large numbers of a gram positive micro-organism resembling B perfringens. It has not been possible to incriminate one particular bacterium as the cause of this disease since other organisms as streptococcus haemolyticus, B. Pyocyaneus, etc., have been isolated in other cases where the same group of symptoms going under the name of 'agranulocytic angina' was manifested

The disease usually affects the middle aged and is more common in women than in men. It often starts suddenly in previously healthy people It also occurs in debilitated individuals after a period of prolonged

ill-health as in the case of Bocage and Filliol where the necrotic pharyngitis started in an anaemic man after a course of N A B. and Bismuth injections It is accompanied by high continuous fever, dysphagia and dyspnœa. The tonsils are enlarged and hyperaemic and subsequently become necrotic The pharynx and lingual tonsil may also suffer the same fate. Sometimes the necrotic process is found in the tongue, gums, anus, vulva, vagina and cervix The chief characteristic is the blood picture which shows considerable leucopenia, the granulocytic cells being the first to diminish Prognosis is gloomy in the extreme though not absolutely hopeless

I am reporting the following case because it was very suggestive of agranulocytic angina

An Anglo-Indian male, aged 20 years, was admitted as an inpatient in the Government Headquarter Hospital, Coimbatore, on 20th November 1928, for high fever and difficulty in swallowing He had a temperature of 102, pulse 98, and respiration 28 The inside of the mouth presented a very unusual appearance. Both tonsils were enlarged, almost greenish blue in colour owing to evident necrosis Posterior wall of the pharynx was also in the same condition while there was a patch of submucous haemorrhage over the palate and uvula. There was bleeding from the gums as well as the tonsils. There was no enlargement of lymphatic glands Examination of throat swab revealed the presence of long chained streptococcus haemolyticus and no diphtheria bacilli. Blood showed marked leucopenia W. B. C. count below 1500. There was relative diminution of polymorphs. There was no enlargement of lymphatic glands. Spleen and liver were not palpable.

On the second day temperature went up to 104 and dysphagia was so great as to prevent the patient from

taking even liquids He also developed purpuric eruptions all over the body and complained of pain over the bones of the thighs and legs. The condition was decidedly one of a severe form of septicaemia. He was put on injection of anti-streptococcus serum, calcium by mouth, calcium by injection and stimulants as glucose and brandy After oscillating between life and death for some days, the patient began to improve, temperature came down gradually accompanied by slow separation of sloughs from the tonsils and pharynx Temperature touched normal on the 16th day and the patient was discharged from the hospital on 13th December 1929

On making enquiries about the patient two months later, we were reliably informed that the patient developed the same symptoms in a more virulent form some fifteen days after being discharged from the hospital and succumbed to the disease in the course of two days

The possibilities in the case are aleukaemic leukæmia and agranulocytic angina. Diphtheria is ruled out because of the negative throat swab and fatal relapse which is an almost unknown phenomenon in Diphtheria Against aleukaemic leukaemia, we have the absence of enlargement of liver and spleen and lymphatic glands Besides, the duration of the disease is too short even for acute leukaemia.

The characteristic signs which suggest strongly the possibility of agranulocytosis are the necrotic condition of the tonsils and pharynx, bleeding from gums, purpuric eruptions, pains over the long bones and high continuous fever associated with a blood picture of distinct leucopoenia especially of the granulocytes and a fatal relapse occurring a few days after the termination of the primary attack.

A NOTE ON CHAUFFEUR'S FRACTURE

By N S NARASIMHAM, F R C S.I.

(General Hospital, Madras)

The back-fire fracture is not a constant lesion. The sites of fracture in the order of frequency as analysed in a large group of cases is as follows :—

In the lower 3rd of the radius, one of the carpal bones—the scaphoid usually; through the level of the lower radial epiphysis, through the ulnar styloid process and the radial epiphyseal line, 25% of the cases showed only damage to soft parts.

During the past 4½ months 11 cases of back-fire cases were seen in the orthopaedic department, the details of which are given below .—

Three showed no fracture and eight had fracture in varying situations (clavicle 1, upper third ulna 1, and both bones lower third 1, Radius alone 5—all at its lower fourth.)

			Nature of injury.	*X-Ray finding*	
1	S	20—M—H	Back fire—injury in front of forearm.	Fracture radius $2\frac{1}{2}''$ above styloid process of radius	
2	M.	45—M—H	Dash against the bar while getting down from the tram.	Impacted fracture lower end Rt radius transverse 3" above the styloid process of radius	
3	E.	22—M—H	Back fire from a starting handle	Fracture Lower end Rt radius 2" above the styloid process Line of fracture runs upwards and slightly medialwards.	
4	S.	20—M—H	Back fire from the starting handle of a motar car	Transverse fracture of the radius at $1\frac{1}{2}''$ above the styloid process of radius, bones in good position	
5	A	10—M—H	Fall on the elbow while at play	Fracture upper 3rd ulna Fragments in good position.	
6	C	15—M—H	Back fire from starting handle	Fracture both bones about 2" from lower end	
7	C	35—M—H	Do	Nil abnormal	
8	E	20—M—H	Felt a sort of catch while starting the car	Fracture of lateral [illegible]rd of Rt clavicle	Slight swelling, Tender spot on the styloid process of Rt radius
9	N.	17—M—H	Back fire from starting handle	*Greenstick fracture Lower end of radius	
10	S	16—M—H	Do	Slight swelling round the wrist, no fracture	
11	P	25—M—H	Do.	Nil abnormal.	

THE PRESENT POSITION OF THE KALA-AZAR TRANSMISSION PROBLEM.

By Dr K V KRISHNAN, M.B., M.R.C.P. (Edin.), D.B. (Lond.)

(*Member, Kala-Azar Commission*)

Ever since the discoveries of Leishman and Donovan in 1903, of the causative organism of Kala-Azar, several workers in different parts of the world have been engaged in investigating the problem of transmission of this disease And although a vast number of very valuable contributions to the literature has been made in many different languages, yet a precise knowledge of how the disease is transmitted from man to man is even now lacking. Three important questions still remain without a definite answer. These are .—

1. Is there or is there not an insect vector ?

2. Is there or is there not an infective stage of the parasite ?

3. Is there or is there not a special susceptibility to infection on the part of the human host ?

It would therefore be worth while taking up these questions individually with a view to finding out as to what amount of attention each has received in the past.

Is there or is there not an Insect Vector ?—From the time of Rogers' demonstration in 1904 of the development of flagellate forms, from the Leishman-Donovan body in artificial culture media and of the recognition of the close resemblance of these to natural insect flagellates, it has been suspected that the transmission of

Kala-Azar may be through a biting insect. This assumption was further supported by facts such as the almost invariable presence of the parasite in greater or lesser numbers in the peripheral blood of Kala-Azar cases and the development of these into the flagellate form in certain insects. It was at first even suggested that Kala-Azar may be an accidental infection in man through an insect flagellate The reported successful experiments of Laveran and Franchini (1913, 1919, 1920) and Fantham and Porter (1915) with inoculations of insect flagellates into vertebrate animals (which have never been confirmed since by any other worker) helped, though for a short time, to maintain this view But now it is definitely recognised, that though *L donovani* may have been originally derived from an insect flagellate ancestor, that it is essentially a distinct species found in man in nature and capable of developing in the culture tube and in certain insects into the flagellate form. With this assumption, a large number of insects came to be suspected of being the probable carriers of Kala-Azar, the bed bug, Conorrhinus, Louse, Tick, Flea, Tabanus, Mosquito, Stomoxys, Culicoides and Phlebotomus have all been accused at one time or another. The enormous amount of excellent experimental work carried out by various workers, and particularly the Indian Kala-Azar Commission, has been helpful in narrowing down the possibilities and suggesting the high probability of *Phlebotomus argentipes* being the transmitter of Kala-Azar Therefore a brief historical review of the development of our knowledge regarding the role of *Phlebotomus* in Kala-Azar transmission will alone be attempted here

Role of Phlebotomus in Kala-Azar—The first suggestion incriminating the sandfly as a possible vector

was made in India by Mackie (1915), who, after investigating the probability of various insects as transmitters of Kala-Azar wrote. "The only insect which has given any return for the work spent is the sandfly and I am of opinion that the relation of this insect to the disease would repay further investigation" Unfortunately this observation was made at a time when Patton's bed-bug theory of transmission of Kala-Azar was at the height of its popularity, and therefore, except for the small amount of experimental work carried out by Mackie himself no other work was done with the *Phlebotomus* In 1922, Mackie again produced very sound arguments in favour of his hypothesis. But in the same year Patton reported that as the result of his study of Kala-Azar in Madras, the sandfly cannot be considered as the invertebrate host of *L. donovani* He wrote "The evidence in favour of the sandfly being the invertebrate host of the parasite of Kala-Azar is not very convincing It is true the sandfly tends to remain in houses near its breeding grounds and is localised in certain areas; but in Georgetown (a hyperendemic focus in Madras) the number of sandflies is very very limited, the only species being *P. minutus*. I have made many attempts to collect these flies but have never been able to get them and the people do not seem to know them They must therefore be scarce and could hardly account for the many cases of Kala-Azar which occur annually in this area." This statement of Patton has since been proved to be incorrect, by the writer (1925) and Barraud (1926) both of whom conducted sandfly surveys of the same area in Georgetown and found not only large numbers of *P. argentipes* and *P minutus* but also three other species; all the flies being particularly numerous in Kala-Azar houses. Following Patton's report Napier and Muir (1923) stated "that from an

epidemiological point of view it can hardly be said that the facts are as much in favour of the sandfly as of the bed bug or fleas" Observations such as these by eminent workers of the times, undoubtedly chilled the enthusiasm for further studies on *Phlebotomus.* In the latter half of 1922, however, Sinton had made a systematic study of all available species of sandflies in India with a view to determining whether any connection could be made out between these insects and Kala-Azar and he in a private communication to Knowles is said to have stated that there was a very close correlation between the recorded distribution of Kala-Azar and *P argentipes.* About this time the results of experiments of Sergent and his collaborators (1921-1922) accusing *P. papatasi* as the transmitting agent in cutaneous leishmaniasis, in the Mediterranean area, were received in India All these in fact strengthened materially the case against the *Phlebotomus* and gave the true impetus for all subsequent work regarding the role of this insect in Indian Kala-Azar Thus in 1924, many workers in different parts of India began experimental studies on *Phlebotomus* In February 1924 Shortt gave what is probably the first published record of *P argentipes* in Assam a hyperendemic area of Kala-Azar In that he pointed out that *P. argentipes* may be a probable carrier. Later in the same year Knowles, Napier and Smith in Calcutta were able to show that nearly 30 to 50% of laboratory-bred *P. argentipes* (female) contracted a Leptomonas infection after feeding on Kala-Azar cases, while none of the control flies fed on normal persons showed any flagellates Then came the excellent works of Christophers, Shortt and Barraud (1925) and Shortt, Barraud and Craighead (1926) who successfully worked out the developmental cycle of *L. donovani* in

P argentipes and demonstrated massive infections in the insect's buccal cavity and the infective nature of the flagellates present there. Furthermore in the same year they also reported having found specimens of *P argentipes* (8 out of 345 caught) in nature in an endemic area infected with flagellates identical with the parasite of Kala-Azar, the infection with flagellates being as heavy as in the laboratory-infected flies Every evidence, epidemiological, and experimental, obtained between 1924—26 was in favour of *Phlebotomus* transmission. Fortunately about this time the difficulty as regards the lack of a suitable experimental animal had also been overcome Smyly and Young (1924) had discovered that the Chinese hamster (Cricetulus griseus) was highly susceptible to infection with *L. donovani* and these animals were available in India for experimental purposes The only confirmatory proof required was actual transmission of Kala-Azar either to a susceptible animal or the human volunteer by the bites of the infected flies, and it was thought that this final proof would not be long in being established The Indian Kala-Azar Commission between the years 1927 and 1929 carried out a large number of transmission experiments with over 156 experimental animals (including 25 hamsters and 11 human volunteers) and 22,000 infected *P. argentipes*, but failed to obtain any positive results These negative results are all the more significant when one realises that "the intensity of exposure to infection in the form of bites from infected flies is very much greater in the series of experiments described than could ever obtain in nature within the same period " It is not surprising, therefore, that these workers have at present switched back to an intensive re-investigation of the oral method of transmission.

Oral transmission.—As is well known, from the very beginning of the study of Kala-Azar transmission the possibility of the parasite gaining access to man by the oral route has always been kept in mind. The defective sanitary conditions with which Kala-Azar is invariably associated, the occurrence of the disease among people who are careless in their feeding habits, and its incidence in more than one member in certain families have often suggested that the disease might be caused by contaminative infection. Furthermore, the frequency of intestinal lesions with diarrhoeic and dysenteric symptoms in the terminal stage of Kala-Azar, the occasional presence of Leishmania in ulcers of the intestine (Manson and Low 1904) and in the intestinal villi (Perry 1922) of Kala-Azar patients, and the possible passage of Leishmania in a viable form in the urine (Shortt 1923) and fæces (Mackie 1914, Knowles 1920) have all lent a certain amount of support to this hypothesis. Again on the experimental side stray evidences definitely in favour of this theory can also be found.

Archibald (1914) first obtained infection in two monkeys by feeding them on material containing Leishmania obtained from a fatal human case and an infected monkey.

Cornwall and La-Frenais (1916) recorded one case of successful infection of a white rat from ingestion of bread soaked in an old culture of *L. donovani*.

Knowles, Napier and Gupta (1923) reported infection of a monkey fed on Kala-Azar spleen and liver.

Adelheim (1924) noted that a healthy mouse kept in a jar for 5 months with an infected mouse contracted the disease.

Greig and Christophers (1925) infected a monkey by injecting into the lumen of its intestine jejunum material containing citrated spleen juice and cultures of Leishmania.

Christophers, Shortt and Barraud (1926) infected a white mouse by feeding it on the cultural form of *L. donovani*.

Although evidence such as recorded above in favour of the oral method of transmission was being reported from time to time no worker on Kala-Azar took up the question seriously and gave it the attention it deserved. In 1928, however, the Indian Kala-Azar Commission under Shortt, recognising the importance of re-examining in detail the possibility of oral infection, started work along these lines. In the same year Shortt and his co-workers were able to obtain infection in a hamster that had been given by mouth a year previously 0 2 c.c. of mixed liver and spleen emulsion from another infected hamster. The above material was dropped by means of a pipette into the open mouth of the hamster. In 1929 these workers again obtained successful infections in a large number of hamsters by the oral route. In one series using 10 hamsters and liver and spleen emulsions, they obtained infection in 8. And in another series using 6 hamsters and cultures of *L. donovani*, they obtained infection in 3 Again in a third series of experiments 6 infected hamsters were kept separately in cages alongside six normal hamsters also separately in cages Two out of the six originally normal hamsters became infected with Kala-Azar In addition to these results, they were able to demonstrate the presence of typical *L. donovani*, identical in all respects with those

found in tissue smears in the recently passed stools of two Kala-Azar cases.

From the foregoing summary of evidence in favour of both the *Phlebotomus* and oral theories of transmission, it will be evident how very difficult it is at the present time to give any conclusive answer regarding the question of a possible insect vector The weight of evidence so far obtained appears to be equal on the two sides, and the more one studies the question the more difficult it becomes to reach a correct conclusion.

(*To be continued.*)

From a case sheet —

" Inability to stand—sit or lie down—"

What else was the patient able to do ?—" Hanging in mid air ?"

Romplete Rest

Doctor —" You are run down—No violent exercise—What are you ?

Patient —I am an anarchist.

Doctor.—Then don't throw any bombs for a week or two."

—*The Passing Show*

Purely Medical Reasons

" Now, tell us about it—Why *did* you steal the purse ? "

" Your honour—I won't deceive you—I was ill and thought the change might do me good."

—*Sydney Bulletin.*

PROCEEDINGS OF THE
UNIVERSITIES' CONFERENCE AT BOMBAY.

The other Indian Universities having Medical Faculties were invited by the Syndicate of the University of Bombay to send the delegates of their Medical Faculties to meet the delegates of its Medical Faculty in a Conference to be held in Bombay on the 5th and 6th May 1930, for considering the situation arising from the withdrawal by the General Medical Council of the recognition of the Indian Universities for the purpose of registration by the Council and suggesting measures for safeguarding interests of the Indian Medical students, graduates and the profession

The Conference was attended by the following delegates of the Indian Universities .—

Andhra University—

Rao Saheb Dr. T S. Tirumurti, B A , M B. & C M , D T.M & H , Professor of Pathology, Medical College, Vizagapatam.

University of Bombay —

1 Dr S K Vaidya, M R C.S , D.T.M & H , D P H

2 Dr. Jivraj N Mehta, M D , (Lond), M.R C P. (Lond), F C P S , Dean, Seth Gordhandas S. Medical College.

3. Dr. G V. Deshmukh, M.D., F R.C S.

University of Lucknow—

1. Rai Bahadur Dr B. N. Vyas, M B., Head of the Department of Materia Medica, Lucknow Medical College.

2. Rai Bahadur Dr J P Modi, L R C P. & S., L F.P. & S., Head of the Dept. of Forensic Medicine,

University of Madras—

1 Rao Bahadur Dr A L Mudaliar, B.A., M.D., Obstetric Physician & Gynæcologist

2. Major K G Pandalai, M B & C M., L R.C.P, F.R C.S., I M.S, Professor of Operative Surgery, Madras Medical College

3 Dr. P. S. Ramakrishnan, L R C.P. & S., D.T.M. & H, Professor of Bacteriology, Madras Medical College

University of the Panjab—

1. Dr K. A Rahman, M.B Ch.B. (Edin), D P H. (Lond.), Asst Director of Public Health, Professor of Hygiene, K E. Medical College, Lahore

2 Lt-Col D. H Rai, I M.S., Professor of Pharmacology & Therapeutics, K E Medical College, Lahore

University of Patna—

1. Capt. P. B. Mukerjee, B. Sc M B., F R C S, (Edin.), D M R E. (Camb), Lecturer in Radiology & Radiologist, Medical College, Patna

2 Dr. H Hyder Ali Khan, L M. & S (Bom), F R C S. (Edin), M R C S (Eng.)

The Conference was opened by the Vice-Chancellor, the Hon'ble Mr Justice Mirza Ali Akbar Khan, B A, Bar-at-Law, in the presence of the delegates and of a number of prominent members of the Medical Profession in Bombay

The Hon'ble the Vice-Chancellor delivered the following inaugural address —

GENTLEMEN DELEGATES,

On behalf of the University of Bombay, I extend to you a most cordial welcome.

This University has taken the initiative in convening this Conference of representatives of the Medical Faculties of the Statutory Universities of India in order that they may meet and consider the serious situation which has arisen in this country owing to the resolution of the General Medical Council of Great Britain and Ireland passed on the 24th February 1930, withdrawing from the Indian Universities the rights they had been allowed to enjoy since 1892 of having their Medical Degrees registered by the Medical Council The rights conferred by the registration were, that the holders of our Medical Degrees could paractise Medicine, Surgery, and Midwifery in Great Britain and Ireland, in certain parts of the British Empire and in certain foreign countries where British Degrees so registered are recognised Since 1922 the matter has been one of prolonged controversy between the authorities of the General Medical Council on the one hand and those of the Indian Universities on the other. Every effort seems to have been made to arrive at a workable scheme whereby the old amicable relations might be maintained, but unfortunately, when a definite settlement seemed to be reasonably within sight, the negotiations broke down on a point to which the Medical Council were inclined to attach much importance and which our authorities were not prepared fully to concede It would not be proper now to dwell on the rights or wrongs of that controversy except so far as a discussion of the subject may be helpful in understanding the viewpoint of the Medical Council in case we desire to be reinstated in our former position

So far as I have been able to follow the controversy the position seems to me to stand in this way In this country, Western Medical Institutions are of comparatively recent origin They came into existence with British rule in India and owe much of their present growth to British Government in India. In 1892 when the General Medical Council decided to register our Medical Degrees, the Government of India was in direct control of all Medical Institutions The teaching of Medical students was then mainly in the hands of Members of the Indian Medical Service who were recruited from Great Britain and

Ireland and possessed English, Scottish or Irish Medical Degrees. The number of Medical Institutions in those days was small and the General Medical Council had confidence that those responsible for the education of Indian Medical students are pursuing the methods and traditions to which they had been accustomed in the country of their origin During the Great War I M. S men could not be spared for teaching work and their places in the various Medical Colleges under Government were given for the greater part to non-I. M S men. In the wake of the War came the Montague-Chelmsford Reforms, one result of which was that Medicine became a transferred subject under the control of a Minister in each Provincial Council, the Government of India giving up the direct control they had previously exercised over the subject The rapid pace at which Indianisation of the Medical Services has proceeded since these political Reforms and the extent to which I M. S men in the various Medical Colleges have been replaced by local men have become matters of comment in certain quarters more particularly among certain retired I M S. men now resident in England who have expressed an opinion that under present conditions medical education in this country is likely to deteriorate Some responsible persons in this country are inclined to believe that the present action of the Medical Council is influenced by some such panicky views brought to their notice.

Another factor of great importance in the situation seems to be that in view of the experience gained during the War the Medical Council have extensively revised the methods and standards which were in vogue before the War and now insist on a much severer standard of minimum proficiency than was the case before the War. While this programme was being followed in Great Britain and Ireland it was brought to the notice of the General Medical Council that Medical students in India, except in Madras, were not getting in Midwifery the minimum practical experience required by the Council Rules before being allowed to sit for the Degree giving examination. This led to an inquiry into the matter by the General Medical Council when our

Universities other than Madras admitted that owing to local prejudices, increase in the number of students and other causes it had not been found possible to supply each Medical student with the minimum number of Midwifery cases required by the Council and that efforts were being made to surmount the difficulties The General Medical Council investigated the matter with the aid of Sir Norman Walker and Col Needham. Madras was kept out of this investigation and Madras Degrees continued to be unconditionally recognised With regard to the other Universities in India the Council intimated that in the discharge of their Statutory duties they would be obliged to discontinue registering their Degrees unless the defects complained of were immediately remedied and some guarantee were forthcoming that the Council's minimum requirements would, in future, be fulfilled. Pending the formation of a General Medical Council for India which would lay down proper rules and standards for Universities to follow the Council intimated that they would be willing to continue rocognising Indian Degrees for registration if a Commissioner of Medical Qualifications and Standards in whom they had confidence, would assure them from time to time that the Indian Universities concerned were maintaining the minimum requirements of the General Medical Council The Council in the meanwhile agreed to Col Needham and later General Megan, Col Dutton and others visiting the Medical Institutions in this country and making reports from time to time Col Needham was occupied from 1922 to 1927 in inspecting Medical Institutions in this country and on the strengtth of his favourable reports from time to time the Council continued recognising our Degrees As the result of Col Needham's suggestions many valuable improvements took place in our modes of conducting Medical examinations and in the methods of teaching Medical subjects The last report made by Col. Needham in July 1927 to the General Medical Council and the report made by Sir Norman Walker in June 1927 to the Secretary of State for India showed that the Medical institutions in this country were then in a remarkably efficient state and were fulfilling more than the minimum requirements of the General Medical Council

The same satisfactory progress was maintained in 1928-29 as is shown by the various reports It was assumed, however, that once the supervising hand was removed things might again slacken and not come up to the minimum requirements of the Council

About this time it was found that the University of Madras which had previously attained a high efficiency in the teaching of Midwifery and was up to the mark in other subjects had slacked off and was no longer maintaining the minimum requirements of the Medical Council About the same time a good many new medical Colleges came to be established in India. The General Medical Council thought that it could not negotiate with the Universities in India individually in order to ascertain from time to time whether the various institutions affiliated to them were observing the requirements of the Medical Council, and insisted that until a Medical Council was established in India there should be a Commissioner of Medical Qualifications and Standards here on whose assurance they could act Up to this point, it seems that public opinion in this country had not been properly consulted in the matter of appointing a Commissioner to tide over the difficulties which had arisen with the General Medical Council When the various bodies competent to advise in the matter were consulted, their opinion was found to be against the proposal The principal ground of objection taken was that the Medical institutions in this country would not tolerate a Dictator being placed over them Another ground stated was that it would be impossible to find a single individual who would be an expert in each of the three branches Medicine, Surgery and Midwifery The Legislative Assembly threw out the Government proposal to have a Commissioner of Medical Qualifications and Standards and counter proposal which the Government of India thereafter, made to the Medical Council to have a Provisional Medical Board, with the Director-General as President was not found acceptable to the Medical Council. The negotiations having thus broken down the Executive Committee of the General Medical Council at their meeting on the 24th February 1930 passed this momentous resolution .—

(a) "That in the absence of authoritative information respecting the medical qualifications and standards of the Indian Universities of Bombay, Calcutta, Lucknow, Madras and Punjab, the Executive Committee of the Council in fulfilment of its duties under the Medical Act, 1886, Section 13, is unable for the time being to recognise the Medical Degrees of these Universities as 'furnishing a sufficient guarantee of the possession of the requisite knowledge and skill for the efficient practice of Medicine, Surgery and Midwifery' in this country; and that accordingly the conditional recognition hitherto granted to these Degrees has now lapsed".

The position with which we are now faced is this, the General Medical Council are not prepared to recognise our Degrees except on their own terms. Those terms are that we should have a General Medical Council in India which would perform with regard to the Indian Universities functions similar to those of the General Medical Council in Great Britain and Ireland and that in the absence of such a Council and pending its creation we should have a Commissioner of Medical Qualifications and standards on the faith of whose reports the Medical Council would be prepared to continue to recognise our Degrees for registration

There is no difference of opinion in this country that there should be a General Medical Council for India on the lines of the British Medical Council. When that comes to pass and if we are then desirous of having our Degrees registered by the British General Medical Council it would appear that the Medical Council would have no objection to doing so. As the General Medical Council have expressly left the door open for future recognition of our Degrees it would appear to be undesirable to say or do anything now that might come in the way of future reconciliation. What we are immediately concerned with is the insistence of the Medical Council on the condition that a Commissioner of Medical Qualifications and Standards should be appointed as a condition

of their continuing to recognise our Degrees. Responsible persons in this country have already expressed an opinion against this proposal. It is possible that the Medical Council do not intend that our Medical institutions should be put under an arbitrary Dictator. The counter-proposal made by the Government of India was so near the proposal made by the General Medical Council that it seems a pity the Medical Council could not see their way to accepting it. The difference on which the matter has finally fallen through appears to me to be so small that one need not despair that better counsels might still prevail and when negotiations are again re-opened the parties might arrive at a workable arrangement.

The discontinuance of the recognition of our Degrees, no doubt, is a matter of legitimate annoyance to many of us, the more so as we feel convinced that our present standard of efficiency should more than satisfy the minimum requirements of the Medical Council. It would be more dignified in my opinion on an occasion like the present to be restrained in our criticism of the Council's action and to show a full appreciation of their point of view in the matter. The lodging of a protest or denouncing the Council's resolution can do us no good and may possibly damage our good cause. If properly handled our claim to being recognised by the Council for registration is bound to succeed. We would not like the Medical Council to think that we want to force ourselves on them. They should register our Degrees only if they are convinced that our minimum standard is not less than what they require.

The position created by the discontinuance of the recognition of our Degrees raises some further questions of a serious nature. Registration by the Medical Council is considered at present to be a necessary condition for entry into some public services like the I. M. S. in this country As we cannot be sure how long this present attitude of the Medical Council is likely to last, we must proceed to set our own house in order and act on the assumption that the right now taken away from us will not be restored, at any rate in the near future. We should

get our Government to legislate with a view to removing all such disabilities as are occasioned by the non-registration of our Medical Degrees by the Medical Council. India is rapidly on the road to Dominion Self-Government. The sooner we are able to stand on our own feet in medical matters, the better it might be for our country. Much as we may value our connection with the British General Medical Council we cannot submit to it if it is to imply any subservience on our part to that body. As in the domain of politics so also in that of the professions we are to insist on an equal treatment as the price of our good will and co-operation. With the establishment of a General Medical Council for India, we should be in a better position to assert our equality with the General Medical Council and bargain with them on equal terms. In the meanwhile there appears to be no need for us to quarrel with any one much less with the General Medical Council of Great Britain and Ireland.

At the conclusion of the Address, the Hon'ble the Vice-Chancellor and the invited visitors withdrew and the Conference began its deliberations by electing Dr. S. K. Vaidya, Chairman of the Conference.

At this stage the news of Mahatma Gandhi's arrest reached the Conference, on which it was *resolved* that out of respect to Mr. Gandhi the Conference stand adjourned till 2-30 p.m.

On reassembling, the Conference, after full discussion *unanimously* passed the following fifteen resolutions :—

1. This Conference recommends to the Government of India, Local Governments and Indian Universities that pending the creation of an Indian Medical Council by an Act of the Central Legislature, that an Inter-University Medical Board consisting of one representative of each University in India from its Medical Faculty as members, and with the Director-General, Indian Medical Service, as President, be created early with powers—

(*a*) to regulate the courses of Medical Studies in the different Universities with a view to securing an

uniform minimum standard of qualification for University Medical Degrees.

(b) to suggest arrangements for the mutual recognition on a basis of equivalence of the courses of medical studies followed in the different Indian Universities,

(c) to appoint Inspectors, who will be specialists in their own subjects and who have knowledge and experience of Medical Education in India and who shall not be members of the Board, for the purpose of carrying out inspections and reporting on standards of Medical Education and examinations ; it being understood that all the Indian Universities conferring Medical Degrees will undertake to accept the decisions of the Board, arrived at after the Universities concerned had the fullest opportunity to represent their views on the report of the Inspectors, and to carry out the suggestions made therein.

This Conference resolves that the expenses incurred in the formation and the work of the Inter-University Medical Board should be met by grants from the Government of India and from the Indian Universities or Local Governments concerned.

3. That before the Indian Medical Council Bill is introduced in the Legislative Assembly, this Conference requests the Government of India to obtain information on the following points to enable the Central Legislature, the Universities, and the public to know the practice in other countries where medical education and registration are properly organised —

(a) The standards of medical education in force in France. Germany, Italy, Switzerland, Japan, Egypt, the United States, Canada and New Zealand and the system by which they are regularised and controlled.

(b) The system of the Registration of Medical Practitioners in force in the countries referred to in (a) above, and the provisions of the Medical Acts in these countries regulating the same,

(*c*) The system of reciprocity for the registration of the Medical Practitioners of other countries, if any, that may be in force in any of the countries referred to in (*a*) above.

4. That as the provisions of the Indian Medical Council Bill, when introduced in the Legislature, will need to be carefully considered in the light of the information that may be available on the points referred to in clauses (*a*), (*b*) and (*c*) of Resolution No 3, this Conference is of opinion that the Bill relating to the constitution of an Indian Medical Council should be circulated again for opinion before its introduction into Central Legislature. This Conference is further of opinion that the experience gained by the working of the Inter-University Medical Board will be of material assistance when the Indian Medical Council Bill comes to be considered.

5. This Conference is of opinion—

(*a*) that one of the important factors in the improvement of Medical Education is the appointment of experienced teachers from different Medical Colleges as external examiners,

(*b*) that with a view to encouraging the appointment of such external examiners, and in view of the long distances in India and the amount of time taken which compel many experienced teachers to break away from their work, an adequate remuneration should be allowed to such external examiners, and

(*c*) that the period during which a teacher is engaged as an examiner in another University, should be treated by the Authority employing him as duty leave.

6. In view of the recent action of the General Medical Council, London, this Conference—

(*a*) strongly urges the Secretary of State for India and the Government of India to rescind the existing rule

by which the holders of Commissions in the Indian Medical Service are required to possess a Medical Qualification registrable in the United Kingdom, as the same is manifestly unfair to the holders of Medical Qualifications conferred by the Indian Universities,

(b) strongly recommends to the Government of India that for the purposes of all medical appointments in India the minimum Qualifications shall hereafter be the Indian Medical Qualifications registrable in this country provided that Indian Nationals possessing only British or other foreign qualifications acquired up to 1940 are eligible for such appointments, and

(c) strongly recommends that the annual recruitment to the Indian Medical Service should be by an open competitive examination to be held in India

7. That this Conference recommends that Medical Graduates of the different Statutory Indian Universities should be permitted to appear for the higher degrees or post-graduate diplomas of any of the University subject to such conditions of residence, post-graduate courses or research work as the particular University may impose.

8 This Conference is strongly of opinion that the representation of the Medical Faculties of the Indian Universities on the Governing body of the Indian Research Fund Association is not adequate and that the present method of election is highly unsatisfactory, it therefore, suggests that in the interests of Medical Research in India the Governing body of the Indian Research Fund Association should have on it at least one member elected by the Medical Faculty of each of the Statutory Universities of India.

9 This Conference recommends that with a view to making higher study in special subjects possible in India, post-graduate courses such as in Medicine, Surgery, Obstetrics and

Gynæcology, Pharmacology, Mental Diseases, Oto-Rhino-Laryngology, Ophthalmology, Radiology, Pathology and Bacteriology, Hygiene, Orthopœdics, Biochemistry and Biophysics, Pediatrics, Anatomy, etc., should be started by the different Statutory Universities in India and Degrees or Diplomas instituted for the same as early as possible.

10. This Conference recommends that, with a view to encourage manufacture of drugs and other medical specialities in India arrangements should be made by the Indian Universities to start courses in Pharmaceutical Chemistry and to institute a special Degree and Diploma in the same subject.

11. This Conference is of opinion that in making Teaching appointments in Indian Medical Colleges and Hospitals every consideration should be paid to the teaching experience of the candidates applying for the same.

12. This Conference is of opinion that the Universities should afford facilities for research in every main branch of the Medical Science.

13. That with a view to encouraging Medical Research in India, this Conference recommends that a Medical Research Institute should be located at each University centre, having a Medical Faculty and that close co-operation should be fostered between the Medical Research Institute and the University.

14. This Conference recommends that in future all recommendations for awards for the Rockefeller Fellowships and Studentships, etc., should be made by Government in consultation with the Indian Universities.

15. In view of the great benefits likely to accrue to Medical Education in India by a Conference of the Medical Faculties, this Conference recommends that a Conference of representatives of the different Medical Faculties should be held every year in the different University centres by rotation.

After a vote of thanks to the Hon'ble the Vice-Chancellor and the Registrar, the Conference concluded its sittings.

CASE REPORTS.

A case of Adenomyoma of the uterus with bilateral "Endometrioma" of the ovaries.

(*Department of Pathology, Medical College, Madras.*)

Miss G—aged 27 years, Female, Indian Christian, was admitted into the Government Hospital for Women and Children, Egmore, with a complaint of painful periods for the last 12 years. The periods had also been irregular for the last few years On vaginal examination a uterine fibroid was suspected and she was operated on in March 1930. The following are the operation notes.

"Chocolate cysts were found in both ovaries. A diffuse fibroid was found on the posterior wall of the uterus. The tumours were adherent to coils of intestine. There were a few small pigmented areas in the uterine tumour. Supra-vaginal hysterectomy was done"

To the naked eye, both cyst walls (only small pieces were available) were of a yellowish brown colour, about ¾ mm. thick and 1″ × ½″ in size. On one side they showed small brownish nodules and a glistening white membrane on the other. The uterine tumour was tough, greyish white and presented a few white bands running through it There was no evidence of a capsule and no blood vessels were visible to the naked eye. (The size of the tumours was not mentioned.)

Microscopic Examination

Uterine tumour :—The stained section shows "islands" of glandular acini, surrounded by dark blue cells and muscular tissue, which is of the unstriped variety. The acini are circular or irregularly oval and are lined in some places by cubical, in other places by columnar or ciliated cells. The cells are in a

single layer and stain blue with dark blue nuclei. Some of the cells show a vacuolated appearance. These acini are arranged in groups of seven or eight on an average, being of various sizes. These "islands" are surrounded by small, mostly oval and a few stellate stroma cells with very faint nuclei. These cells are arranged very loosely with very scanty matrix. Around these are bundles and whorls of involuntary muscle fibres. There is comparatively little fibrous tissue in the section and blood vessels also are few. Some of the vessels show endarteritis.

Ovarian cyst.—On one side is seen a layer of deeply staining small spindle shaped cells. This layer is fairly vascular and a few areas of hæmorrhage are also to be seen. These cells resemble the interstitial cells of the uterine endometrium. The other side consists of a somewhat loosely arranged connective tissue consisting of fusiform cells with groups of dark brown pigment.

The rest of the section shows involuntary muscle tissue, more abundant than normally found in the ovary. Very little fibrous tissue is seen.

From the clinical notes and the condition of the uterus, the appearances are suggestive of "endometrioma" or "endometrial implantation cysts" (Ewing) of the ovaries.

The chocolate cysts of the ovary or "Endometrial implantation cysts" (Ewing) are supposed to arise from endometrial tissue in the ovary, due to the backward passage of menstrual blood through relaxed tubes, or from manipulative measures on the uterus, during various surgical operations. The fluid that these cysts contain is degenerating menstrual blood. "These cysts occur during the menstrual life of the patient, usually from 30 to the menopause. They are small in size, as a rule from 2 to 4 cms in diameter. The lining cavity may be smooth or grey, or, rough and brown owing to pigmentation from old hæmorrhage" (Boyd).

Regarding the origin of Adenomyomas of the uterus, Cullen traces the origin of the new mucosa to the already existing endometrial glands, and that chronic inflammation may well play an important part in determining its growth into the uterine wall. (Ewing).

Sir John Bland-Sutton (British Medical Journal, May 1930) submits another explanation for the origin of adenomyomata of the ovary. He says that in this condition the endometrial epithelium is apt to permeate the wall of the uterus and budlike outgrowths might emerge on its peritoneal surface. When an ovary lies in contact with such outgrowths, its tissues may be implicated by the active epithelium and in this way establish a menstruating cyst.

A case has been recorded in which a woman was submitted to a curettage of the uterus by abdominal and uterine incisions The margins of the abdominal incision were soiled by blood and endometrial fragments. Two years later she returned with a small lump in the abdominal scar; this lump swelled and became painful during a menstrual period On removal and microscopic examination, this lump showed the structure of normal endometrium. It was an " endometrioma ".

We are indebted to the Superintendent, Government Hospital for Women and Children, Egmore, for the clinical notes of the case.

EDITORIAL.

The Simla Medical Conference.

An important medical conference was recently held at Simla on the 23rd and 24th July, and the resolutions that have been passed therein are now common property. We are glad that the Conference was able to come to some agreed conclusions as to the future of Medical Education in the country. The starting of an All India Medical Council is an essential pre-requisite and though last year at a similar conference this proposition did not gain much ground, we are glad to note that at this Conference, there has been an unparalleled unanimity of opinion in favour of the creation of such a body as the All-India Medical Council.

India is a country peculiarly unfortunate in the many problems that present themselves in whatever walk of life one should like to introduce reforms. The Medical profession here has to face problems, which perhaps do not exist in any other country of the world; and naturally therefore a concensus of opinion on an agreed basis on any single item, it would be difficult to arrive at. But we hope that the spirit in which the Simla Medical Conference has come to unanimous conclusions will induce a ready response in the hearts of every medical man who wishes well by his profession in the future.

The chief resolution passed by the Simla Conference was "The Formation of an All-India Medical Council and its composition." We note that the All-India Medical Council is to be composed of one representative of the University, one representative nominated by the

Provincial Governments, and one representative elected by the Graduates on the Provincial Medical Register from among those who have had 10 years of practice of the profession and a teaching experience of 5 years in any of the Colleges or Schools affiliated to the University. Besides these, the Central Government is to nominate the President, in the first instance for a period of 3 to 5 years, and three representatives to the Board of the All-India Medical Council. We may also state that these are only resolutions subject to modifications and alterations and that the Hon'ble Member-in-charge of this portfolio in the Government of India has assured the Conference—and the Conference has also passed a resolution to that effect—that before any Medical Bill on these lines is introduced into the Legislative Assembly, the draft Bill would be circulated through the Provincial Governments to the Universities, to all recognised medical unions and be published in the press.

We have therefore no hesitation in saying that, as no commitments have been made, the criticism that the Conference held at Simla tried to rush through any measure, or to injure the interests of any particular body, is hardly tenable. One particular criticism has been levelled against the Conference and unfortunately in these days such a criticism, will be difficult to refute; and a refutation will only serve to increase difference of opinion if not excite passions. We have absolutely no desire to try to do either; but we must, in fairness to those present at the Conference, state what we believe is a fact, that with regard to one of the conditions, *viz.*, the prescription of a qualification of 5 years teaching experience to those who are voted on the All-India Medical Council, we are reliably informed that the move came from those who could speak on behalf of the

independent medical profession; that some of those in the services, realised that this condition would perhaps lend colour to an impression that, as the majority of those on the teaching staff were at present persons in the services, there was an attempt to keep out others, or to get all the seats as a monopoly of the services. It would serve no useful purpose if we were to state as we are further told that this was not the aspect of the question that occurred to the majority of those present there, and that, in fact, representatives from Universities who were not in the services were themselves responsible for the introduction of this condition. We would, however, state that this is not an essential condition and that when the Bill is circulated, there will be no difficulty, on an agreed basis, to have this particular condition removed.

The difficulties in regard to qualifications, which are not University qualifications in this country, are many for a central organisation like the All-India Medical Council, to look after them. In the first place, conditions in the Provinces so materially differ that it would be unfortunate if one steriotyped plan was adopted for all Provinces. We have ourselves felt that conditions, for instance, in the Presidency of Madras, are so vastly different from conditions that exist perhaps in most parts of Northern India; that while there would be no difficulty in having one uniform standard of qualification in this Presidency, there might be a great deal of objection in some of the other Provinces. But apart from all that, we should like to state that if the medical profession would take some interest in this question and come to some unanimous conclusions as to what it is they want, there would be no difficulty to get everybody included in the Central All-India Medical Council or Register. Some who have criticised that particular

qualifications have been left out, have perhaps ignored the fact that these are details which will primarily cencern the All-India Medical Union when it comes into being, and that there is no reason why an act of the legislature, which has been passed at a particular period, should not, as experience is gained and need for alterations arises, be suitably amended. We only hope that whatever may be the criticisms that may be levelled against this or that particular aspect of the proposals passed at the Simla Medical Conference, when the draft Bill is circulated for opinion, medical opinion will veer round the necessity for the creation of an All-India Medical Council and that, forgetting slight differences that may loom large for the present, medical opinion will solidly back up whatever suggestion there may be for the furtherance of the constitution of the All-India Medical Council. In any such effort that may be made by sister medical unions, we have no hesitation in stating that the Madras Medical Association will be very glad to take its share with them and to show by example, rather than by precept, that it has got the interests of the medical profession at heart and not the interest of any particular section thereof, to the detriment of any other section. We wish the proposed All-India Medical Council every success and we wish to take this opportunity of expressing our gratitude to the Hon'ble Sir Fazi Hussain, the Hon'ble Member-in-charge of the Department of the Government of India, for the great interest he is evincing in the matter and for the care with which he is trying to negotiate the diverse forces for the favourable consideration of the proposed measure.

CORRESPONDENCE.

On the Decision of the General Medical Council.

A letter from J. N. Mehta, Esq., Gordhandas Sunderdas Medical College, Parel, Bombay (12), to the Editor, Madras Medical Journal, Madras, dated 22nd March 1930.

DEAR SIR,

Herewith is a copy of a Press note I am issuing on the correspondence recently published by the Government of India regarding our relations with the General Medical Council, London, and the establishment of an Indian Medical Council. What attitude towards the General Medical Council should be and what provisions in the Indian Medical Council Act should be included against the recurrence of such insolence in the future, I have discussed in the last two paragraphs of the enclosed note. I would draw your attention to them as well as to what I have written regarding the baseless fears of the threatened harm to our medical students at present in England, at the recent decision of the General Medical Council, which is raised in several Anglo-Indian papers So far as these students are concerned, the action of the General Medical Council is innocuous and this needs to be impressed on the Indian Public opinion so that our people are not unnecessarily frightened into surrender as desired by the Anglo-Indian Press and the British I.M.S. Officers.

You will have noted in the published resolutions of the General Medical Council that there is no reference in them to their reconsidering their present attitude when an Indian Medical Council is constituted. What guarantees have we that when such a Council is constituted, the General Medical Council will not come forward and say that the courses of study and standards of Examination as laid down by the Indian Medical Council do not give " the necessary guarantee of sufficiency," as they have

actually said regarding the proposals of the Government of India on the appointment, till the Indian Council is constituted, of an All-India Medical Board for the purpose of supervising Medical education and examinations in India. I would therefore urge that no demand should now be made from any responsible Indian quarter, asking the General Medical Council to reconsider their decision. It is not for us now to take the ' next move ' as desired by the " Evening News of India," Bombay, in its editorial of the 15th March. Our line of action is clear

I would like to get a copy of the Egyptian Medical Act, which must be in the Education, Health and Lands Department and study its provisions regarding Foreign Nationals to which I have referred in my note

Yours sincerely,

J. N. Mehta.

The General Medical Council's Decision. India's Duty.

With the publication of the correspondence that passed between the Government of India and the General Medical Council, the public is now able to have a fairly accurate idea of the elaborate and well considered proposals submitted by the Indian Government to secure the continuance of the recognition of the Indian Medical degrees by the British General Medical Council and of the attitude of this Council towards them

The Government of India had assured the General Medical Council, with the previous concurrence of all the Local Governments, that a Bill for establishing an Indian Medical Council was to be taken in hand " with the least possible delay " that the intricacies of its various provisions would permit. But, though agreed in principle to the institution of such a body in India, the General Medical Council had neither the patience nor the courtesy to hold their hand during the indispensable period of time it would take to pass the necessary legislation for setting up such a body. Till such a Council is constituted,

instead of a single Commissioner of Medical Qualifications and Standards that the General Medical Council had asked for, the Indian Universities offered, through the Government of India, individually as well as through the Inter-Universities Conference, the appointment of a much more suitable alternative in the forms of an All-India Medical Board who would appoint "Specialists in their own subjects, namely Medicine, Surgery and Midwifery, respectively, for the purposes of carrying out inspection and reporting on the standard of medical education and examinations". But even that did not satisfy the General Medical Council who expressed their inability to accept this proposal "as furnishing a satisfactory method of supplying the Council with authoritative information on Medical qualifications and standards in India and with the necessary guarantee of sufficiency."

If the Government of India had any self-respect left they would not tolerate such insults to themselves and to the Indian Universities. Or are they impotent before powerful vested British interests? No doubt the British General Medical Council is a powerful body, backed as it is by the British I M.S. Officers both on the retired as well as on the active list. For these very Officers are the technical advisers of Government of India and of the Secretary of State for India on Medical matters. So it is no wonder that the fiat of the General Medical Council is made to appear to our Government Secretaries, Ministers, and Members almost in the nature of a decree of fate against which there can be no appeal.

Now that the die is cast, and the British Medical Council has declared its intentions, the question of entering into any further negotiations, with this Council should be ruled out of court altogether. We should henceforth have nothing to do with the British Medical Council and with British Medical Degrees, whose holders, both British and Indian, have unfortunately hypnotised themselves as well as the whole country into a belief on their alleged superiority. The decision of the General

Medical Council has thus been a blessing not in disguise but without a disguise.

Efforts are being made in certain quarters to frighten the Indian Public as to the future prospects of the 450 Indian Medical students who are at present studying in the United Kingdom. Though the rupture between the Medical Council of that country and the Indian Universities has now occurred, no apprehension need however be felt so far as the interests of these students are concerned. On a careful study of the report of the Education Department of the High Commissioner for India for the years 1927-28 and 1928-29, it would be found that nearly four-fifths of the Indian Medical students at present in that country, have had their medical qualifications in India, and that they are already on the British Register. Their future prospects, so far as the continuance of their studies in the United Kingdom is concerned, need therefore cause no anxiety to their parents and friends.

As regards the forty or at the most fifty undergraduates, who are studying at the British Medical Schools now, and who would be in difficulties when British degrees are not recognised in India for reasons stated below, a special provision could be made in the Indian Medical Act when passed and as discussed hereunder, to the effect that such Indian Nationals may be taken on the Indian Medical Register without any examination before a certain date, say 1935. The interests of no Indian now abroad, and not qualified in India, would thus suffer.

So far as the attendance and instruction in Hospitals and Medical Colleges is concerned, even for those who may still desire to go to Great Britain for further medical studies, no difficulty need also arise so long as they pay their fees, whether reciprocity exists or not. Medical practitioners of the American Portuguese and other nationalities, whose qualifications are not registrable in the United Kingdom, do even now go to that country to attend the Hospital practice and laboratory and other classes, which they are allowed to do on payment of the usual

fees. Indian Nationals can therefore, do likewise. They will of course not be able to appear in the British Medical Examinations, nor obtain their degrees. But in my opinion it is just as well that they will not be able to do so, because they make a fetish of British qualifications in this country, what the young Medical Graduates should henceforth do is, if they are still desirous of going to the United Kingdom, to go there and attend the classes as the other nationals do. The training they would get in this way would if they are earnest in their work, be sufficient for all professional requirements. And if they want still better training, they must remember that they can get excellent post-graduate instruction through the medium of English at Vienna, which has the largest Hospital and the best Post-Graduate Medical School in the world. They will be also welcome in Germany, France and Italy for such training and experience

The question arises, how long are we to tolerate dictation at the hands of the General Medical Council? If we had the real Dominion Status in action in India, on which the Secretary of State for India has harped several times during the course of the last six months, the arrogance of the General Medical Council and the British Medical Journal whose comments on the decision of this Council have been telegraphed to us, and of their supporters, would not have been tolerated for an instant, and the rule by which aspirants for Commissions in the Indian Medical Service are required to hold a Medical qualification registrable under the British Medical Acts would have been immediately abolished. But in the present situation, it is necessary for the Medical and lay public in India to bring to bear the greatest possible pressure on Government to do what a National Government would have automatically done It must be understood that so far as the Dominions like Canada, Australia, New Zealand, etc, are concerned, no such special privilege is allowed to the British Medical qualifications in the countries. As a matter of fact, New Zealand and several Provinces of Canada have ceased reciprocity with the General Medical Council and they are none the worse for this break. The Medical Graduates from these

Dominions do even at present go to Great Britain for Post-Graduate work without let or hindrance.

I am glad to learn that Dr. M. D. D. Gilder, is already drafting a Bill to *amend the Bombay Medical Act, 1912, with a view to rescind all the privileges which are conferred under that Act, on the holders of British medical qualifications in the Presidency.* I trust the other provinces will follow suit While the Legislative Assembly is still in Session, the members should demand an assurance from Government that the gauntlet thus thrown down by the General Medical Council shall be taken up. And the Secretary of State should be pressed *to rule that all candidates for admission into the Indian Medical Service should henceforth be Indian Nationals holding Indian Medical Qualifications registrable in India.*

The establishment of an Indian Medical Council should be proceeded with as early as possible. As regards provisions in the Indian Medical Council Act *for the permission of Foreign nationals to practise in India,* these will need to be modelled on the lines of the Egyptian Medical Act, which make it compulsory for all Foreign Nationals, who desire to practise in Egypt, *to pass an examination to be held by a Special Board of Examiners appointed for the purpose by the Minister of Public Health.* Such provisions in the Indian Medical Council Act will need to be made as much applicable to the Officers of the R. A M. C. and of the naval and mercantile marine during the period of their service in India or in the Indian Territorial waters as to the other nationals. This will be India's reply to the insolence of the General Medical Council.

22-3-1930. JEVRAJ N. MEHTA.

MADRAS,

5th April 1930.

FROM.

M. R. RY. RAO BAHADUR DR. M. KESAVA PAI, AVL., M. D.,

PRESIDENT, MADRAS MEDICAL ASSOCIATION,
48, Harris Road, Mount Road, Madras.

TO

THE SECRETARY TO GOVERNMENT,

DEPARTMENT OF MEDICINE AND PUBLIC HEALTH,

Fort Saint George,

(Through the Surgeon-General with the Government of Madras.)

SIR,

I have been asked by the Executive Committee of the Madras Medical Association to make the following representations to you in the matter of the recruitment to certain special teaching appointments in the Madras Medical Department, *e. g.*, the professorships of Anatomy, Physiology, Pathology and Medical Jurisprudence.

At the recent meeting of the Madras Legislative Council the Committee of this Association understands that a budget allotment has been made providing for these appointments on specially high salaries and from the proceedings of the Council it appears likely that recruitment to some if not all of these appointments will be made in England without opportunities being given to local candidates and men in the service to apply for them.

In reply to the deputation of this Association which waited on the Honourable the Minister for Public Health at Ootacamund in May 1929, the deputation was given a personal assurance

that the members of the provincial service would be given an opportunity of applying for these appointments when the time came for their being filled up; that qualifications being equal members of the service would even be preferred to outsiders; and to ensure a just and fair selection the appointments would be made by the Public Services Commission of Madras.

The Association has therefore asked me to request you that advertisement for these appointments may be made in this country also to enable members of the service with the requisite qualifications to apply and that the Government will place the selection in the hands of the Madras Public Services Commission which has now been constituted.

To enable the members of the provincial service to make personal representations on this question and elucidate the various points more clearly, the Committee requests that an opportunity may be given them as soon as possible to wait on the Honourable the Minister for Public Health in deputation.

I have the honour to be,

Sir,

Your most obedient servant,

(Sd.) M. KESAVA PAI, M D.,

President, Madras Medical Association.

LOCAL SELF GOVERNMENT,

No. 14252-1 (D 1) P. H.

FROM

A. D. CROMBIE, Esq., I.C.S.,

DEPUTY SECRETARY TO THE

GOVERNMENT OF MADRAS.

To

THE PRESIDENT,

MADRAS MEDICAL ASSOCIATION,

48, Harris Road, Mount Road P O, Madras.

DATED *Ootacamund, the 26th/29th May 1930.*

Subject Recruitment to certain professorships.

SIR,

With reference to your letter, dated 5th April 1930, I am directed to state that the Government intend to advertise the posts in question both in England and in India. The claims of applicants who are already in service will be duly considered and the final selection will be made only consultation with the Madras Services Commission In the circumstances, the Government do not see any necessity for a deputation to wait on the Hon'ble the Minister for Public Health at present.

I have the honour to be,

Sir,

Your most obedient servant,

(Sd.) A. D. CROMBIE,

Deputy Secretary to Government.

ASSOCIATION NOTES.

An Executive Committee meeting of the Association was held at 6 p.m., on Friday the 4th April at 48, Harris Road.

PRESENT :—Rao Bahadur Dr. M Kesava Pai, M. D ; Rao Bahadur Dr. A. Lakshmanasami Mudaliar, Drs P. V. Cherian, A. S. Naidu ; S Ramakrishnan ; M. J Santanakrishna Pillai and P. Venkatagiri.

The Vice-President Dr. A Lakshmanasami Mudaliar was requested to draft a memorandum to Government regarding the General Medical Council's decision. The President was request-ed to address the Government through the Surgeon-General for permission to wait on the Hon The Minister for Public Health with a view to represent the claims of the service to certain special teaching appointments contemplated. A copy of the letter to be sent to Dr. Tirumurti, Vizag, Dr. A. S. Naidu, Madras, Dr P Venkatagiri, Royapuram, Dr Krishnayya, Tanjore, and Dr. M. Narasinga Rao, Coimbatore, at these different teaching centres requesting them to consult the members of the Teaching Staff (Provincial Service) and to depute one or more members to join the deputation.

An Executive Committee meeting of the Association was held at 6 p.m., at 11, Police Commissioner's Office Road on Friday the 11th April 1930.

PRESENT :—Rao Bahadur Dr. M. Kesava Pai, M.D , Drs. A. Lakshmanasami Mudaliar ; P V Cherian, A. S. Naidu, S. Ramakrishnan and P. Venkatagiri.

The Memorandum prepared by Dr. A. Lakshmanasami Mudaliar was approved.

An ordinary meeting of the Association was held on Saturday the 10th May 1930.

After tea kindly provided by Dr. A. Lakshmanasami Mudaliar, the Vice-President of the Association, a paper on "Filariasis" was read by Dr. K. P. Menon of the King Institute, Guindy, with the Vice-President in the Chair.

A discussion ensued after the reading of the paper in which almost all the members present took a lively interest and touched on all the aspects of disease.

This went on for over one hour and in the course of his concluding remarks the Chairman observed that the discussion that night equalled in standard what he personally witnessed at one of the meetings of the Royal Society of Tropical Medicine when he was in England.

Our thanks are due to those members who gracefully took delivery of the last issue of the journal, paying an extra postage, which was not anticipated when posting the journal-copies

Members who are in arrears of subscription to the Association are requested to kindly remit the same (Rupees five per annum) to Dr. S. Ramakrishnan, Secretary, Madras Medical Association, Medical College, Madras.

AN APPEAL TO THE MEDICAL PROFESSION.

Lieut -Col. E W. C Bradfield, Chairman, Board of Studies in Medicine, has sent us an appeal for circulation to the medical profession which was sent to him from the "William Harvey Memorial Fund Committee."

The mortal remains of William Harvey the great exponent of the experimental method in biology and founder of scientific medicine lie under the vault of Hamstead Church, Essex. The tower of the ancient church collapsed in 1882. This appeal is addressed by the Committee of the Memorial Fund to the medical profession of the British Empire in the hope that the profession, appreciating the greatness of his achievement and the greatness he rendered to humanity will subscribe towards the rebuilding of the fallen tower.

Subscriptions may be sent to Lieut.-Col. Bradfield direct or through the Secretaries of the Association.

REVIEWS.

The twelfth Edition of Dr. Ghosh's "Treatise on Materia Medica and Therapeutics" is a small volume packed full of information most useful to the practitioner in his daily role of prescribing and to the student of medicine preparing for examinations. The pitfalls of pharmacy and the art of prescription writing are well brought out with a view to impress on the reader the importance of incompatibilities, and dangerous combinations forming either outside or in the body. The volume is a good guide to the intelligent compounder, containing as it does various and minute points of importance to the dispenser. The different sections of the subject are well grouped and each subject is concisely dealt with, with categorical importance. With all the matter it contains, the volume is small and handy, and in our opinion, it should find a place on the shelf of every medical man, every dispenser and every student. It would have been a great advantage to the student if he is given the information about the components of various compounds, powders, etc., as it is very important that he should know what all he will be prescribing later in his practice and what effects he would expect from his prescriptions. Such a procedure has not been yet discarded in the commoner volumes of materia medica published in the United Kingdom. Although it may be said that it is enough if one knows the percentage composition of the chief component of a drug, *e.g.*, the quantity of opium in Pulv Ipecacuanha Co (Dovers' powder), yet it will be well if one also knows the other ingredients and the purposes they are there to serve.

With this added information, it ought to be most popular in the medical world.

NEWS.

We welcome the formation of the All-India Ophthalmological Society, the First Congress of which was held at Bombay on the 17th April 1930. Besides bringing all the Ophthalmologists in India together every year, and promoting a feeling of co-operation and good-will between different medical men in that special branch of medicine, it is bound to advance the cause of science. In view of the recent decision of the G. M. C. such gatherings are, in the long run, bound to improve medical education, as the society is mostly composed of the Independent medical profession. We hope other societies in other branches of medicine such as Obstetrics and Gynaecology, Venereology, Tuberculosis, etc., will soon be formed in the country.

The report of the Inter-Universities Conference, which we publish elsewhere is of interest. The resolution to constitute an Inter-University Medical Board, composed of representatives of the different Universities in India is welcomed. The Conference has properly resolved that the I. M. S , competition be revived and held in India and that the competitors need be Indian Registered graduates.

Other welcome features of the Conference are the proposal to urge the Universities to institute courses in Pharmaceutical chemistry, with a view to encourage the manufacture of indigeneous drugs and the institution of post-graduate courses in special branches of medicine.

The conference also recommended the appointment of Inspectors, "who will be specialists in their own subject, and who have knowledge and experience of Medical Education in India" to report on standards of Medical Education, and also the appointment of 'external' examiners for the different University Examinations.

We are publishing elsewhere the correspondence that has passed between the Government and the Madras Medical Association with reference to the special appointments in Pathology, Anatomy, Physiology and Medical Jurisprudence.

It is a matter for regret that no definite assurance has been given to safeguard the claims of the Provincial medical service, regarding these appointments; we consider it the duty of the Government to give every encouragement to members of the service to specialise in these subjects by deputing members of the service, to study in foreign countries, following the example of the British Educational institutions, to prefer their own graduates, to outsiders.

We hear that there is a proposal to abolish the B.S.Sc. courses in the Madras Medical College. If the news is true, it means that students will have to proceed to the Calcutta School of Tropical Medicine for undergoing training as Health Officers and this is indirectly a discouragement to intending Health Officers. In view of the progress that preventive medicine is making in this province, this proposal is regretted; we hope it will not turn out to be true and that wiser counsel will prevail in the end.

We are glad to welcome their return into our midst, Dr. M. R. Guruswami Mudaliar, M.D., Dr. M. G. Kini, F.R.C.S., M. CH., and Dr. S. Venkatasubba Rao, M.D., D.P.M.

Dr. Guruswami, was deputed to England to study advanced Therapeutics and Dr. M. G. Kini went on study leave to specialise in Orthopaedic Surgery. Dr. Venkatasubba Rao was deputed to England and America to study Psychiatric work, and to visit large and important institutions both in Great Britain and America. Their wide and varied experience, will, we are sure, be of great benefit to the population of this Presidency, unlike some, who carry with them their experiences on their departure away from this continent.

The Conference held at Simla recently, under the Presidency of the Director-General, Indian Medical Service, to consider the situation created by the recent decision of the General Medical Council passed some important resolutions. The proposal to form an All-India Medical Council and the recommendation to the Secretary of State to modify the rules governing the recruitment to the I. M. S., are of interest. We hope these proposals will be accepted and orders passed at an early date.

We are glad to learn, while going to the press, that the Viceroy's Thanksgiving Fund in honour of the recovery of the King-Emperor, which amounts to 9½ lakhs, has been allotted to the Campaign against tuberculosis in India.

INDIAN MEDICAL DEGREES.

The following resolutions were adopted at a meeting of the Medical profession of Bombay, held on April 5th, with Sir Nasarwanji Choksy in the Chair :—

1. That this meeting of the medical profession in Bombay, emphatically condemns the decision of the Executive Committee of the General Medical Council in refusing to recognize the medical degrees of the Indian Universities based as it is on anti-Indian bias.

2. That this meeting urges upon the Government of India the necessity of appointing immediately an inter-university medical board consisting of the representatives of the Government and of Indian universities from their medical faculties, for determining and supervising medical education, qualifications, and standards in Indian universities.

3. That this meeting is of opinion that an All-India Medical Council be established by an Act of Legislature, and further suggests to the Government of India that the draft bill for the establishment of the same be circulated for public opinion before its introduction in the Central Legislature.

4. That this meeting request the Provincial Governments to amend the existing Medical Acts in such a way as to abolish the privileges conferred by certain sections thereof upon persons holding qualifications registrable under the British Medical Acts.

5. That this meeting is of opinion that admission to all the medical services of the country should be restricted to Indian nationals holding medical qualifications registrable in India, and urges upon the Government of India that recruitment to the I.M.S., henceforth

should not be by nomination but by a competitive examination to be held in India alone.—BRITISH MEDICAL JOURNAL.—*June 7th, 1930.*

Extracts from the meeting of the Bombay Branch of the British Medical Association.

A letter from the Medical Secretary of the British Medical Association, dated November 30th, 1929, regarding the resolutions passed by the Central Council of the All-India Medical Association was considered. On the motion of Sir Nasarwanji Choksy, seconded by Dr. A. S. Erulkar, the following resolution was carried:—

That this meeting of the Bombay Branch approves of the resolutions of the Council of the All-India Medical Association with the exception of No. 8, regarding which the Branch favours the creating of an All-India Medical Council.

Dr. A. S. Erulkar moved the following resolution, which was seconded by Dr. S. P. Kapadia and passed:—

That this meeting of the Bombay Branch protests against the decision of the General Medical Council of Great Britain and Northern Ireland to withhold recognition of Indian medical degrees for the time being as being unfair, unjust, and derogatory to the self-respect of the Indian Universities. That this meeting authorizes our representative at the Annual Meeting to move a resolution to this effect on behalf of the Bombay Branch. —BRITISH MEDICAL JOURNAL.—*June 7th, 1930*

LIST OF MEMBERS OF THE MADRAS MEDICAL ASSOCIATION.

Abbu, Dr C.	... Vizagapatam.
Achutha Menon, Dr. E.	... Royapuram.
Alahasingari, Dr N.	.. Vizagapatam.
Ananthan, Dr. K. M.	.. Secunderabad.
Ananthanarayana Iyer, Dr. C. K.	... Dindigul.
Anantharanga Rao, Dr C. N.	... Mettur.
Ananthayya, Dr. U	.. Salem.
Appu Mudaliar, Dr. K. S.	... Cocanada.
Balasimha Rao, Dr. K.	... Retired.
Balavelayudhan, Dr. S.	... Cuddalore.
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Benegal, Dr. V. N.	... Ramachandrapuram.
Benjamin, Dr G. I	. X-Ray Institute, Madras, (on leave).
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Bhavani Shankar, Dr G.	... Royapettah.
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Cherian, Dr. P. V.	... E N T Surgeon, Madras.
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Ganapathi Rao, Dr. U.	.. Cuddapah.
Gantayet, Dr S.	... Parvatipur.
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Gopala Menon, Dr. T. V.	... Manjeri.
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